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THE TAKATA-ARA TEST IN THE DIAGNOSIS OF LIVER DISEASE*

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LIVER function tests have given to the clinician, on the whole, rather meager aid, although they have advanced knowledge concerning the nature of hepatic disorders. Any new tests which may be more specific than the tests employed up to the present and which may cast new light upon the problems of liver function should be welcome.

In 1925, Takata[1] reported a test performed upon serum which he thought distinguished between lobar and lobular pneumonia. He and Ara[2] then reported the reaction in cerebrospinal fluid. It seemed to be of value in distinguishing between meningitic and luetic involvement of the central nervous system. There have appeared numerous articles upon the use of the Takata-Ara reaction in cerebrospinal fluid, examples being those of Nicole[3, 4], Daffinee and Grzebieniowska[5] and Cameron and McCulloch[6]. The Takata-Ara reaction in the cerebrospinal fluid bears a resemblance to the colloidal gold reaction in technique and interpretation, but has the advantage that no complicated laboratory procedure is required.

Takata and Ara believed that the reaction depended upon a diminution of colloid protective action due to an increase in globulin which allowed the precipitation of a mercury oxy sol. The value of the test for distinguishing between lobar and lobular pneumonia was never corroborated. Jezler[7, 8, 9] recognized that a protein shift in the blood was not peculiar to lobar pneumonia, as Takata indicated. Stimulated by Staub[10] in the same clinic in Basel, Jezler employed the test upon the serum and ascitic fluid in liver disease. It was found to be positive in the serum and ascitic fluid of practically all cases of advanced liver cirrhosis, as well as in the serum of cases of severe parenchymal liver disease, and negative almost uniformly in all other diseases, including cholelithiasis, and in healthy persons. Jezler's observations have been corroborated very recently by Skouge[11], Oliva and Pescarmona[12], Hugonot and Sohier[13], Lazzaro[14], Tannenholz[15], and Crane[16].

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The Takata-Ara serum reaction is not well known in this country and appears to deserve some recognition, not only as a diagnostic aid, but also as an advance in the knowledge of the physiology of the liver. During the past year we have performed the test upon the sera from over four hundred cases of all types entering the general hospital wards, and particularly from patients who showed evidence of liver pathology.

METHOD

The method used for testing the serum and ascitic fluid has been greatly simplified along the lines indicated by Crane[16] to whom the authors are indebted for advice regarding both the simplification and the method of reading. Only six dilutions of serum or ascitic fluid are necessary instead of eight or nine, since precipitates in the greater dilutions are without significance. Fuchsin is not used because any influence which it may have upon the reaction is doubtful, and the color reactions have not lent themselves to interpretation.

To each of six test-tubes (100 x 13 mm.) is added 1.0 cc. of 0.9 per cent sodium chloride solution. To the first tube 1.0 cc. of serum or ascitic fluid is added and the contents are thoroughly mixed. One cc. of this mixture is then removed and added to the next tube, and the contents thoroughly mixed. The process is repeated in the remaining tubes, and the 1.0 cc. from the sixth tube is discarded. The dilutions of serum are 1:2, 1:4, 1:8, 1:16, 1:32, 1:64. To each tube is added 0.25 cc. of ten per cent sodium carbonate solution, and 0.15 cc. of 0.5 per cent mercuric chloride solution. The mixtures are allowed to stand at room temperature overnight and readings are made at sixteen to twenty-four hours. The one-half hour reading of the original test was abandoned, since it seemed to give no important information, although the final sixteen to twenty-four hour reading could sometimes be anticipated from the character of the one-half hour reading.

A definite, pearly flocculent precipitate occurring in any tube at the end of sixteen to twenty-four hours is interpreted as a positive reaction. A fine, granular precipitate or a coarse flaky precipitate is without significance. In the fourth, fifth and sixth tubes a small, reddish

granular precipitate will usually appear, particularly if the serum and the sodium carbonate solutions are not mixed adequately before the addition of the mercuric chloride. This is also without significance. The reading is aided by the fact that in well-marked positive sera there is a pearly flocculent precipitate in nearly all of the tubes which is most marked in the fourth and fifth tubes. In positive ascitic fluids the precipitate is usually most marked in the second and third tubes.

As an aid in interpretation, readings were divided into five groups: strongly positive, positive, weakly positive, suspicious, and negative, depending upon the amount of precipitate and the number of tubes containing precipitate. A strongly positive reaction was considered present when there was a maximum precipitate in any one tube, or some precipitate in at least five tubes. The maximum precipitation is very well marked and obvious, and, when it settles, fills at least the lower third of the fluid column. A positive reaction was present when there was a definite, but not maximum precipitation in any one tube, or some precipitation in at least three tubes. A weakly positive reaction was present when there was a definite but minimum flocculent precipitate in any one or two tubes. A suspicious reaction was one in which there was a doubtful flocculent precipitate in any two tubes. A negative reaction was present when no flocculent precipitation was present, granular and flaky precipitates which settle quickly being totally disregarded.

Serum many weeks old, preserved at ice-box temperature, is suitable for testing. Small degrees of hemolysis do not interfere with the reaction, although serum containing large amounts of hemoglobin is better discarded. Oxalated plasma has been found to yield results similar to serum in a number of instances.

RESULTS

Tables I and II summarize the results of the Takata-Ara reaction in various diseases of the liver, and in numerous control conditions. The reaction was positive in about sixty per cent of the cases of liver cirrhosis. With the exception of five cases, these were all diagnosed as types of alcoholic cirrhosis. Two of the five exceptions were presumably cases of Banti's disease in children; the third was a case of healed acute yellow atrophy in a young man, diagnosed by biopsy of the liver; the fourth was a case of moderately advanced pigment cirrhosis; the fifth was a case of biliary cirrhosis diagnosed at autopsy. Of these five cases all but the fourth and fifth showed positive Takata-Ara reactions.

In fourteen of the seventy-seven cases of liver cirrhosis listed in tables I and II, the diagnosis was established by autopsy or biopsy of the liver. In ten of the fourteen cases the Takata-Ara reaction was positive, or in seventy-one per cent, and in these ten cases the cirrhosis was far advanced and was the primary cause of death. In three of the four remaining cases in which the Takata-Ara test was negative, the cirrhosis was not far advanced and was not the primary cause of death. Two of the latter cases died of heart disease, the third of lobar pneumonia. The fourth case was a patient who is still living but suffers, primarily, from a severe chronic normochromic anemia. A moderate pigment cirrhosis of the liver was discovered at laparotomy. The Takata-Ara serum reaction is, therefore, positive in practically all cases of advanced liver cirrhosis and negative, probably, in most cases of early liver cirrhosis.

The diagnosis of liver cirrhosis in the seventy-seven cases was either well established by clinical evidence or was extremely probable. A combination of several of the following factors was considered as sufficient evidence to render the diagnosis of liver cirrhosis probable: a history of chronic alcoholism, enlarged liver sometimes with enlarged spleen as well, jaundice, ascites, history of hematemesis, varicosities of the esophagus. To these symptoms and signs was often added a history of chronic ill health, without an established disease process to explain it, and anemia. In many of the cases the cirrhosis was certainly not far advanced, and in many the Takata-Ara reaction was negative. In two instances the Takata-Ara reaction was negative at the first observation, but positive at subsequent observations.

The reaction was definitely negative in 365 cases in which there was no evidence of liver cirrhosis. These were general medical and surgical cases in the hospital. Some of the diagnoses in this group were general arteriosclerosis, chronic bronchitis, hypertension, chronic nephritis, duodenal ulcer, carcinomatosis, pulmonary tuberculosis, pneumonia, leukemia, syphilis, colitis, bone fracture, chronic arthritis of various types, miscarriage, pregnancy. In this group are also included some cases with liver damage other than cirrhosis. In the group of cases with liver damage other than liver cirrhosis in which the Takata-Ara reaction was positive were two cases of severe catarrhal jaundice and two of "hepatitis" occurring during the course of infection; two cases of miliary tuberculosis of the liver found at autopsy in individuals dying of advanced pulmonary tuberculosis; one case of central necrosis of the liver found at autopsy in an individual dying of sepsis; two cases of advanced chronic passive congestion of the liver in individuals dying of cardiac decompensation. The reaction was negative, on the other hand, in cases of intense jaundice due to biliary obstruction associated with gallstones or pressure from tumor growth, in three cases of metastases to the liver shown by autopsy, in six cases of cholecystitis

without jaundice, in one case of jaundice following arsphenamine administration, and in two cases of jaundice accompanying a hemolytic anemia (one case of chronic acholuric jaundice, and one case of erythroblastic anemia [Cooley]). It is obvious from the data given in table II, therefore, that the Takata-Ara reaction may sometimes be positive in cases of severe liver damage other than that due to liver cirrhosis.

The Takata-Ara reaction was performed upon the ascitic fluid from five patients. In two individuals with well-established liver cirrhosis and in one with autopsy findings in the liver of miliary tuberculosis, passive congestion and focal hemorrhages, the reaction was strongly positive both in the ascitic fluid and in the serum. In a fourth patient the reaction in the ascitic fluid was strongly positive, but in the serum negative. This was a male of forty-two years of age with ascites and x-ray evidence of neoplasm connected with the lower dorsal vertebrae. The tests were not repeated and no autopsy was performed. Finally, the reaction was negative in both serum and ascitic fluid of a female of fifty-three years of age who had marked jaundice with ascites. The cause of her condition was never determined, but it was thought to be due to malignant disease of the gastrointestinal tract with metastases.

The Takata-Ara reaction was positive in eleven cases in which the evidence available was insufficient to establish the diagnosis of liver cirrhosis or liver damage. The reaction was considered to be, therefore, "falsely positive" in nearly three per cent of the 376 cases in which there was no evidence of liver disease. Only one of the cases was autopsied, so that it is quite possible that some, even most of them, had some liver damage. They were usually quite ill at the time that the reaction was performed. It is interesting that nine of these cases were females, which suggests that the state of serum protein which has to do with the positivity of the reaction may be more labile in women. There were, however, many more males than females with liver cirrhosis, but the percentage of positive Takata-Ara reactions in the two groups, male and female, was about the same; namely, about sixty per cent.

DISCUSSION

The evidence presented here confirms the observations of various investigators that the Takata-Ara reaction in the serum is positive in advanced liver cirrhosis and in certain other cases of severe liver damage. Jezler's patients in whom the reaction was positive usually died during the observation periotl in the hospital. He regarded a positive reaction in catarrhal jaundice of grave significance. The reaction has been reported positive in acute yellow atrophy. Crane reported one patient who had acute yellow atrophy and a positive Takata-Ara reaction, who later recovered and the reaction became negative. Jezler has reported, and the authors have observed, in liver cirrhosis a negative Takata-Ara reaction early in the course of the disease, becoming positive later. The amount of precipitation is roughly a quantitative measurement of the severity of the disease process in the liver.

Very little satisfactory evidence correlating the Takata-Ara test with other liver function tests has been given. Jezler found that the reaction was not parallel with the tetrachlorphenolphthalein test, the galactose tolerance test, and the diazo and the quantitative bilirubin reactions of the serum. It has been the authors' experience that there is little correlation between the reaction and the galactose tolerance test, or the icteric index. Syphilis was found to play no rôle in the production of the positive reaction. Tannenholz[15], however, noted that the reaction was more frequently positive in cases of syphilis than in other cases.

The rationale of the Takata-Ara reaction is not well understood. It remains at the present time a more or less empirical test for liver function. Jezler stated that it should be placed with the protein tests of liver function. The precipitate is probably a mercury oxy compound in loose combination with certain proteins of the serum. A mercury oxy sol is formed through the contact of alkaline serum with the mercuric chloride. Its state of dispersion is maintained by the colloidal nature of certain of the blood proteins. Under certain disease conditions the "protective" action of the protein is diminished or lost, the state of dispersion of the mercury oxy sol is changed, and a precipitate forms. It was thought by Jezler and others that the albumin was the "protective" protein involved in the reaction, an increase in the globulin portion acting in the opposite direction. Jezler believed that the reaction was positive usually when the albumin-globulin ratio of the plasma was reversed, and that it therefore would be positive in other conditions besides liver damage. This is not strictly the case because Skouge found a number of instances of disease other than liver damage in which the Takata-Ara reaction was negative although there was well-marked reversal of the albumin-globulin ratio. The author has observed several such instances, although it was true that in the cases of liver cirrhosis in which the albumin-globulin ratio was determined, it was usually greatly altered from the normal value. The degree of positivity, however, did not agree with either the total protein or with the degree of reversal of the albumin-globulin ratio. In no instance of thirteen cases of chronic nephritis, in many of which there may have been an albumin-globulin shift, was the reaction positive. Crane suggested that

the failure of blood to pass through the liver and to be shunted by collateral anastomoses may have to do with the production of a positive reaction. At any rate the positive Takata-Ara reaction seems to be linked intimately with a failure of liver function, probably influencing the amount or the colloidal state of certain serum proteins.

A change of the test mixtures toward a higher hydrogen ion concentration tends to allow precipitation to take place. Pongor[17], by using sodium bicarbonate instead of sodium carbonate, found positive reactions in most active cases of tuberculosis, and found the test, by this means, of use in the estimation of the severity of tuberculosis. Schindel[18] was able to produce positive reactions in vitro by the addition of lower fatty acids, and his results possibly are to be explained on the basis of a slight shift of the hydrogen ion concentration.

The Takata-Ara reaction bears a certain relationship to Weltmann's coagulation band as demonstrated by Skouge. It may also have a relationship to the direct diazo reaction of van den Bergh, or rather both tests may be influenced by a change in the protein fractions of the serum (Adler and Strauss[19]).

The Takata-Ara reaction has been found useful in this clinic in a number of ways. It has helped in such problems as differentiating the hematemesis of ulcer and that of ruptured esophageal varices in cirrhosis, the diagnosis of obscure cases of jaundice in which the question of cirrhosis, cholelithiasis or malignancy has arisen. It is certain to prove a useful test upon ascitic fluid. It should be positive upon the ascitic fluid of nearly all cirrhosis cases, because ascites does not arise in these cases until the process in the liver is well advanced. Complete reliance is not to be placed upon the test, however, which of course is true of laboratory tests in general. It gives usually presumptive and corroborative evidence. The estimation of the clinical findings is without doubt the greatest diagnostic aid in the field of liver disease. Nevertheless, the Takata-Ara reaction will prove of value to clinicians who are confronted with grave medical and surgical problems of diagnosis of obscure abdominal conditions, and the simplicity of the test will further its use. The determination of the changes of the colloidal states of the serum proteins in liver disease which have to do with the Takata-Ara reaction, should aid to advance knowledge in the chemistry of the blood and the physiology of liver function.

SUMMARY AND CONCLUSIONS

1. The Takata-Ara serum reaction was positive in sixty per cent of seventy-seven cases of liver cirrhosis and also in certain cases of marked liver damage. It was positive in practically all cases of advanced liver cirrhosis.

2. The reaction was positive in less than three per cent of 376 general medical and surgical cases in which there was no definite evidence of liver damage.

3. The reaction is simple to perform and to interpret. It may be regarded at present as a specific liver function test, although it does not run parallel with other liver function tests. In particular it bears no relationship to the degree of jaundice. It is useful in the diagnosis of obscure abdominal conditions in which there is a question of liver cirrhosis or severe liver damage. Performed upon ascitic fluid it is of value in determining the presence of cirrhosis.

TABLE I

SUMMARY OF RESULTS OF TAKATA-ARA REACTION IN BLOOD SERUM OF CASES WITH AND WITHOUT LIVER CIRRHOSIS

Takata-Ara Reaction	Liver Cirrhosis Established or Probably Present	No Evidence of Liver Cirrhosis
	No. Cases	No. Cases
Negative	27	365
Suspicious	4	16
Weakly Positive	7	10
Positive	16	6
Strongly Positive	23	4
Cases Showing Positive Takata-Ara Reaction	46 = 60%	20* = 5%

*This includes nine cases showing liver damage without cirrhosis. If these are excluded, the percentage of cases having a positive Takata-Ara serum reaction without demonstrated liver damage is 2.7.

TABLE II

SUMMARY OF RESULTS OF TAKATA-ARA REACTION IN BLOOD SERUM OF CASES WITH LIVER DISEASE

	Takata-Ara Reaction	
	Positive	Negative
1. Cirrhosis proved by autopsy or biopsy	10	4
2. Cirrhosis established by clinical evidence	18	3
3. Cirrhosis probably present, as shown by clinical evidence	18	24
4. Liver disease other than cirrhosis		
A. Biliary obstruction	0	6
B. Catarrhal jaundice and "hepatitis"	4	5
C. Metastases to liver	0	3
D. Miliary tuberculosis	2	2
E. Central necrosis	1	3
F. Cholecystitis without biliary obstruction	0	6
G. Chronic passive congestion	2	5
H. Jaundice following arsphenamine	0	1
5. Jaundice accompanying hemolytic anemia	0	2

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THE CARE OF THE PATIENT AS THE RELIGION OF THE PHYSICIAN*

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IN a certain medical school years ago, yet not so many years that I mention the name of the school, it was proposed to establish an additional professorship in medicine, and the proposed candidate for appointment to the chair desired to be known as Professor of the Care of Patients. This was highly objectionable, his expected colleagues protested, as it was a disparagement of their work. What was it they had been teaching, they asked, if not the care of patients? Yet is it not true, that, although the goal of your ambition has been for years to become proficient in this art, the focus of your attention has been often elsewhere than on the patient? In the nature of things it must be so and no criticism is implied by talks on the care of the patient. What is implied is a bringing together, in such fashion as may be possible, of many lines of activity, many methods of investigation, many points of view, under the domination of the idea that this patient, this person who is sick and whom you are trying to care for and relieve and perhaps make well, is some kind of unity. These talks are a recognition of the possibility of the integrity of the patient.

From time to time in your work you look forward and backward again and again and it is well to have a somewhat informal survey in the fourth year of the course in the medical school. But is it not wise to have a survey at the beginning of the four-year course also for those who are just entering upon the novitiate, to make a little clearer to them what it is they are really seeking to know and to understand and to do; perhaps what it is all about? The journey never proves to be just what it looks like from the beginning. Knowing what it is all about actually comes late in the journey, if at all, but it does help in material and in intellectual pursuits if one has a picture of the country through which one is to pass and an image of the goal of one's endeavor.

There are advantages for the worker, bent over his task, in straightening his back and lifting his eyes to the hills, and with the vision of those hills standing far enough away from his work to see it in perspective. It is perspective, rather than new knowledge that I have in mind to talk about to-day.

The point of view that I shall take is to regard the Care of the Patient as the Religion of the Physician and since in these halls dedicated to science the word religion may have an unwonted sound, and in any case has many meanings, I hasten to try to make clear what I mean. It has been said that "liberty next to religion has been the motive for good deeds and the common pretext for crime."[1] It is as a motive for good deeds rather than as a common pretext for crime that I shall discuss religion.

Though religion and science are often contrasted and sometimes regarded as reciprocally exclusive, yet the terms have so many meanings that on some occasions they seem to be very close and almost to overlap. As an example of common ground I quote the words of a student of society, of man in his relations to other men. This writer says: "The value of any science will always be measured in last analysis by its utility for living; there is, however, another less tangible product of faithful scientific study which should not be passed over because it is immaterial. This is insight. . . . Insight it seems is rare, visiting only those who have painfully learned enough to stand intelligently aghast before the limitless vista of the unknown. If so

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it consorts with a sense of frustration and humility rather than satisfied vanity and self-assurance. It engenders a mood of awe and reverence in the face of incomprehensible power. There is more here than the mere satisfaction of intellectual curiosity: there is a quiet disclosure, not sudden and catastrophic, but cumulative day by day, of the order of the universe. Though this is a revelation that evokes no faith in the technical sense, it yet makes for strength of heart and reassured steadfastness of spirit."[2]

"Strength of heart and reassured steadfastness of spirit." That certainly comes close to religion in one of its meanings, but for the meaning which I have selected for the purpose of this occasion, I go back into antiquity and thence down in the history of the church to the beginning of the so-called religious orders. The members of these orders were bound together by a common vow, a common purpose, a common rule, a common life. It is of the care of the patient as that which binds us together as physicians, as that which gives us fundamental unity in our profession, that I shall speak. Religion has indeed an individual significance for us as giving integrity of life, but of this I shall say no more, and of the aspect of religion characterized by solitariness I shall not speak to-day.

The care of the patient! That after all is why we study medicine, why we are willing to pass through this long discipline to become physicians. It is the major interest of our lives. It is the purpose which controls, which dominates, which explains. In the light of that you will understand better the history of medicine, you will understand better the lives of physicians through the ages.

The first aspect of medicine to which I direct your attention is that for most of you medicine will be practice, you will be called upon to do something. You will be confronted by a situation in which you must act; the term practice means this very thing. Of all your life as physicians this will be true, and you will find again and again that when you are called upon to act you will not know what is just the right thing to do. No matter how learned you may become, no matter how skillful, the unexpected and the unknown will lie across your path, and you will acknowledge to yourself, if to no one else, that you cannot be sure what is the best thing to do for the patient. In your perplexity you will console yourself with the reflection that you do the best you know how, but you will find in that only a partial consolation.

Before you can do the right thing, which is the critical point in practice, or before you can do the best you know how, the obligation is laid upon you to know the facts. Confronted with the concrete situation to be dealt with, you must have all the pertinent, available facts, not only as shown by the condition of the patient, but also as found in the body of knowledge which we call the science of medicine. The physician goes from the patient to science and back again to the application of science in practice.

You will note the difference between the methods in practice and in your study in the formal medical course. There you begin by acquiring masses of information, the application of which is by no means clear and much of which you forget; then you pass on to the application. I know that the study of a science such as anatomy, for example, if liberally pursued, will give far more than mere information, necessary and even useful as information may be. But there is a danger which has not been entirely escaped in making the course in medical education too unlike the course in medical practice. Extremes are bad for the student, and I think we have not yet found the middle way.

I have omitted from my description of medical practice one element, which if we can distinguish in importance among essentials, is the most important of all. If the first question is, What are the facts, and the last is, What are we going to do about them, the intermediate question is, What do the facts mean? It is the interpretation of facts that we call understanding that gives the clue to action. I had almost said action without understanding is folly; but actually there is so little we do understand, that I shall say merely that it is fraught with danger. To this critical importance of understanding I shall refer later.

Sometimes one hears the expression that medicine has become "too scientific". Such a characterization is usually not accompanied by the necessary explanation of just what is meant. In the best meaning of science comprehending knowledge and method and spirit, how can medicine be too scientific? Usually "too scientific" means scientifically unbalanced. Science has limitations and when the limitations are forgotten we court disaster.

The first limitation of science is that it looks at one part, or one aspect, or has but one point of view. Each point of view about our sense perceptions of the universe gives us a separate science. This is not a derogation: it is a fact of the utmost significance as giving part of the secret of the power of science; narrower field, sharper vision, greater insight. Anatomy looks upon the human body as if it were a machine of great complexity. In physiology we find the machine working with a marvelous delicacy of adjustment, with a wonderful complexity of relations. Science has an austere beauty that is fascinating. However, the song of science may become for us the sirens' song, if we listen to it too closely, if we forget, as it goes on in ever-increasing beauty, the notes with which it started. These notes are the words "as if". What do these words "as if" mean? I may illustrate by the case of a child ill with appendicitis, for whom operation is the best treat-

Vol. 211
1934

ment. You make the decision as to treatment *as if* there were no considerations to be weighed except the medical facts, and you operate accordingly, in the case of a child having obtained permission in due form. But whether the child has one or two parents, recognizing that it must have had two at some time, whether its skin is white or yellow or brown or black, whether its parents love it dearly or have neglected it completely, whether it has two or ten brothers and sisters, whether it lives in a small house or in a large one, you do one kind of operation, according to the medical conditions, *as if* it had no parents, no family, no social environment. That is, for your immediate purpose, you select what you think are the pertinent circumstances, namely, the medical not the social facts, and you act *as if* for the time being nothing else existed. If, however, after the operation you treat the parents and family *as if* they did not exist, they will not forget it, nor will they be likely to let you do so.

It has been a most fruitful hypothesis, this, to regard the body as if it were merely a machine to be explained wholly in terms of physics and chemistry, and as a working hypothesis it will doubtless enable us to continue to gain insight compared with which our knowledge to-day will seem like ignorance. Perhaps you have studied psychology and perhaps you have been fascinated by psychology without a soul. Certainly it is fascinating and certainly it has enlarged the boundaries of knowledge. But do not forget that it is not quite psychology without a soul; it is merely psychology "as if" there were no soul. The deeper problems involved by those words "as if" lie in the field of philosophy or metaphysics and can be ignored only temporarily.

The knowledge that science gives is recognized to be an abstraction. Perhaps all knowledge is of this sort, but the claim is that that from which the abstraction is made, that which is left behind, in the case of psychology, for example, the psyche, has more importance, is of more value from another point of view, than that which is abstracted, namely scientific knowledge. On this point the poets, the humanists, the moralists protest vigorously. In other fields than science, efforts are made to escape limitation, as in esthetics, ethics, religion, and to get a vision of a whole. But though in these fields, just as in science, there are limitations, they are not the same limitations and we are enabled thereby to avoid or overleap some of the limitations of science.

But you are to care for a patient, who stricken with disease comes to you for relief or cure. What is this patient whom you are called upon to treat? What is this disease from which you shall try to give relief? Sydenham held that disease is merely the effort of nature to restore the health of the patient.[2] We are inclined to think of typhoid fever and of pneumonia as if they were disease entities, having characteristics by which they can be identified, and indeed we often use just that term "disease entity", but actually each of them refers to and perhaps describes a condition of the patient. Disease is then to be regarded as a condition or activity of the patient, an effort at adjustment on the part of the patient to conditions without or within, and further characterized as the name disease indicates, by incompleteness or unsatisfactoriness of adjustment. That is to say, there is a maladjustment for the time being, the effort having not yet issued in good adjustment or ease. The conditions to which adjustment is required may be without or within the patient, so we are brought back to the first question, What is the patient for whom the physician must care?

In your medical course you have studied first a machine, which worked well; and then it worked ill; and finally in the clinic it is an actual case of disease that you have studied. But you have realized, sometimes very acutely, I am sure, that this case of disease is a person who is sick, with all the implications of personality. In the background are hopes and fears; expectations fulfilled and unfulfilled; disappointments, resolves, sorrows, joys; a heredity and an individual past also; an individual acted upon by many unknown influences for years, reacting upon them in turn; in a sense, the resultant of, to you, an unknown heredity, an unknown environment and, if we are to accept the contribution of novelty in each individual, an unknown personality.

The first assumption is that each person is an individual organism consisting of body and soul. You may say the patient has a body and has a soul; or is a body and has a soul; or has a body and is a soul; or is a body and is a soul. Whichever terms you choose the basic fact is that the physician is confronted by a situation of great complexity, best described, however, as consisting of body and psyche, matter and spirit. Final distinctions we cannot make now. In some ways that seem to us to be significant, body and soul are different. In some ways one seems to pass into the other. It is clear that, in some respects, the glands of internal secretion determine character, and by this fact the materialist supports his materialism. But since character is clearly not material, what kind of stuff is the gland and its secretion that character is produced by them? Until we know more of the nature of matter and of spirit, dogmatism is unseemly, so we accept the statement of the materialist as to the fact of interaction between gland and character, if we consider the evidence to be adequate, and waive the claim of his philosophy.

But a person is not an isolated individual: he is a part of a society of individuals, in funda-

mental respects like himself, and his ease or disease depends in part on his reactions to other persons, and their reactions to him. We are gradually learning, and this is slowly penetrating medical education also, that an understanding of the sick individual includes not only an understanding of his body and of his mind, but an understanding of his physical and psychical environment also.

There is, too, the possibility of disease or maladjustment beyond the purely individual person generally dealt with in medicine as disease of individual organisms, that is to say, disease of the larger organism or society. This is the field of social medicine, which is as yet not well explored. It lies now beyond the practice of the physician but not beyond his interest because it is slowly dawning upon the physician as well as upon others that disease of the individual may be related to disease of society.

The patient comes to the physician for treatment and places himself in his care. Perhaps the problem will prove to be simple and easy of solution. It may be that as Hippocrates said, "Experience will prove fallacious and judgment difficult." It may be that the time will come when the physician realizes that if he does the wrong thing, there will be a catastrophe with far-reaching consequences in the lives of many persons; and if he does the right thing *perhaps* there will be a happy outcome. With what intensity of striving does he seek to do the right thing. In his hand are life and death, and he knows not what to do. Or it may be honor, more precious than life that is entrusted to him. With what profound humility he seeks to do what is best, trusting that what he does may be what the situation demands.

What is the relation between patient and physician? Often it is misunderstood. The idea of a contract between physician and patient has been invoked, but although this is on some occasions a pertinent consideration it does not satisfactorily cover the ground. When the patient places himself in the care of the physician, a relational obligation arises, a trusteeship is created. Sometimes it is said that the physician sells and the patient buys services and the exchange is likened to the process of trade. It is a false analogy, it is not a trade. There is involved a professional obligation; the patient puts himself in a very real sense in the power of the physician, for better, for worse. There is involved a trusteeship, a sacred trust, and to carry well the responsibilities of the high calling of the physician, there is demanded the best that any man can give.

What qualities of mind and heart and hand must the physician possess to carry the responsibilities of his profession? What kind of men must you be for the sake of your patients? You are all familiar, I am sure, with what Stevenson says of the physician: "Generosity he has such as is possible to those who practice an art, never to those who drive a trade; discretion tested by a hundred secrets; tact tried in a thousand embarrassments; and what are more important Heraclean cheerfulness and courage. So that he brings air and cheer into the sick-room, and often enough, though not so often as he wishes brings healing."[5]

Then you must have read what Sir William Osler wrote on Aequanimitas[6], that imperturbability with which in time of stress, calmly and dispassionately yet with sensitiveness and restraint and strength, one does what one's hand findeth to do.

The dispassionateness of the physician which has been so highly praised must be in externals only, I think, for I do not see how you can go very far in life unless within you there are hot burning fires. In this contention I am supported by a representative of another great profession, the law, and it is with the greater pleasure that I quote the words of someone outside the medical profession. In discussing the Use of Law Schools, Justice Oliver Wendell Holmes remarked, and I refer to it because it is true of schools of medicine also: "I said that a law school ought to teach law in the grand manner; that it had something more to do than simply to teach law. I think we may claim for our school that it has not been wanting in greatness. I once heard a Russian say that in the middle class of Russia there were many specialists; in the upper class there were civilized men. Perhaps in America for reasons which I have mentioned, we need specialists even more than we do civilized men. Civilized men who are nothing else are a little apt to think that they cannot breathe the American atmosphere. But if a man is a specialist it is most desirable that he should also be civilized; that he should have laid in the outline of other sciences, as well as the light and shade of his own; that he should be reasonable and see things in their proportion; nay more, that he should be passionate as well as reasonable, that he should be able not only to explain but to feel; that the ardor of intellectual pursuit should be relieved by the charms of art, should be succeeded by the joy of life become an end in itself."[7] It is not necessary to do more than refer to the discipline and control that must be exercised over this driving power.

Many catalogues of the needed virtues of physicians have been made. Combined they might rival the famous Catalogue of Ships of which Homer sang. I have selected three as being important but not all-inclusive.

Sir William Osler used to tell his students that "the only virtue a physician need possess is punctuality; if he have this all others will be added unto him." There is more than a grain of truth in this remark and to make it clearer I would like to change the word pune-

tuality to punctiliousness. It is clear that we have here what makes for success in any profession, meeting all one's obligations to the point. There is needed no hint as to what lies in the profession or the calling but in medicine it means a method, a way of life, a scrupulous nicety in doing whatever one as a physician is called upon to do, to fulfill every obligation, to keep every trust that may be reposed, to do well whatever one does, in every point. If one has this fine sense of the fitness of things, one has what has been called "the most austere of all mental qualities . . . the sense for style," and the same writer goes on to say "Style is the ultimate morality of mind."[8] Surely if one has this virtue, all others will be added unto him.

Of the well-known trinity of qualities, knowledge, understanding, skill, I shall dwell upon understanding only, because generally it receives too little emphasis.

There is the old saying that the priest knows humanity at its best, the lawyer knows it at its worst, the physician knows it as it is. It is the ambition of science to know things as they are, but beyond this knowledge it is needful to interpret things properly, to know what they mean, in a word to understand.

How can you understand the patient who comes to you for help? Perhaps you see at once what is the matter and can remedy easily the slight physical disability. Perhaps there is an anxiety which you can easily dispel. Perhaps remedying the apparently slight physical disability does not cure the patient and you must look deeper. Perhaps you can find out easily from what the patient says what is the source of the trouble. Perhaps the complaint as to the body is but a screen which covers the sickness of the soul. Perhaps the patient will tell you only at length and after *you* show some signs of understanding, what the true situation is: the preliminary conversations may be defence reactions, the patient trying to understand *you* before he or she, and I think more often it is a woman, will give you entire confidence. Perhaps the patient does not know how to tell you and is groping blindly.

I have referred to the body and the soul because that is the easiest way to denote with what we are dealing; in each individual there is an outer life and an inner life. It is the poet in us rather than the scientist that talks of the inner life, and seeks to know its meaning. Genung is referring to that which is within when he says: "Life is an ultimate fact; it has no equivalent, it will accept no substitute. In whatever allotment of work or wage, in whatever experience of ease or hardship, in whatever seen or unseen range of being, Life utterly refusing to be measured by anything else, must be its own reward and blessedness or nothing."[9] And Gilbert Murray, in his Religion of a Man of Letters says: "There are in life two elements, one transitory and progressive, the other comparatively if not absolutely non-progressive and eternal, and the soul is chiefly concerned with the second. . . . One might say roughly that material things are superseded but that spiritual things are not; or that everything considered as an achievement can be superseded, but as life not."[10] To the physician this means that he must understand the inner life of his patients, and he will not understand if he fails in this respect himself; he must himself have an inner life that is not poverty stricken, but full and rich and free. Of such a one Plato might say "the Just Man does not permit the several elements within him to interfere with one another, or any of them to do the work of others, but he sets in order his own inner life and is his own law and his own master and at peace with himself."[11]

In dealing with patients you are dealing with persons in whom the spiritual element also may be sick, but in whom the spiritual is always present. It may be obscured, disfigured, overcast, perhaps at first you think it is buried beyond hope. But if you are wise you will see that whatever problems of the body you meet, there may be also problems of the spirit. Yet sometimes even with a sick body you will find the spirit wonderfully beautiful and strong. But if you find sickness of body and of soul, and the patient turns to *you* for help, how in common humanity, if you face life as you ought to face it, can you say "that is none of my business, you must see a priest"? Not with all patients will you have such problems, I know, but may I suggest to you that in your approach to the spiritual problems of your patients, when they lie before you, in your methods of attack and solution, you have in mind that other Just Man of whom Plato had some dim vision, that Just Man who long ago died on the Tree, who has been called the Great Physician. Study his methods as described in the records that have come down to us, subject them to the fiercest light of intellectual exploration of which you are capable, put them to the severest test of practical experience. Catch, if you can, something of his spirit in your dealings with your fellow men and women.

Concerning specific procedures for enlarging the understanding, and I ask you to note that understanding is a thing of the heart as well as of the head, many suggestions have been made. Nothing, however, will take the place of experience: understanding grows with experience and especially is enlarged by suffering. It was said in the olden time when starving the patient ill of typhoid fever was the rule of the day, that no physician was competent to treat a case of typhoid fever until he had had the

disease himself and knew how hungry such patients might be. It is said again and again that one must be a patient to understand a patient. Useful as the method is, I trust that your understanding may grow without experience of this sort.

Now the understanding of persons who are sick is but a part of the understanding of the life of humanity and this we find portrayed in books which indeed interpret and may enlarge our experience and broaden and deepen our lives. You will find lists of books highly recommended but I make no specific suggestion as to title. It has been said "Read only great books," but the difficulty is to know which are the great books and often it is the lesser book that meets our need. Anatole France said: "Criticism is the adventure of the soul among the world's masterpieces. But consider, mes amis, what is a masterpiece?" If you read only the masterpieces you will undoubtedly do well; but you will read much while you are medical students, as a matter of necessity, and it is from poetry, novels and the drama that you will find the best rounding out in your reading as physicians. Not all these word pictures of life will you find profitable. There is a side of life you will come to know so well that you will turn from books that try to describe it. You may even come to think that you know it better than most writers and their descriptions will be pale in comparison with what you have seen in the lives of your patients. As a guide to you in the choice of your supplementary reading, I commend the words of Joubert: "Fiction has no business to exist unless it is more beautiful than reality. Certainly the monstrosities of fiction may be found in the booksellers' shops: you buy them for a certain number of francs and you talk of them for a certain number of days, but they have no place in literature because in literature the one aim of art is the beautiful. Once lose sight of that and you have the mere frightful reality."[1] Now most of us would decline to accept a definition of reality which includes the frightful and not the beautiful, but the words of Joubert are worth remembering because as physicians we so need beauty in our lives. And Goethe said, "A man should hear a little music, read a little poetry and see a fine picture every day of his life, in order that worldly cares may not obliterate the sense of the beautiful which God has implanted in the human soul."

What gives point to a book is your experience: if it does not strike fire there, it is nothing. So you will get understanding most of all by your contact with patients. For this you will have in your internship such an opportunity as you will never have again, for you live in the hospital and can see the patient every hour of the day or of the night if need be. These patients are not mere cases, they are fragments of humanity, and as you work over them, trying to find out what is the matter with them, trying to relieve their suffering, trying to help them get well, some of them will be restored to health and some of them will pass on into the darkness of death. It will be a test of the manhood that is in you to go with them in friendliness and sympathy and understanding to the threshold from which you turn back but which they pass over. If you have eyes to see, you will have indeed the opportunity to become aware, as perhaps never before, of what it is that gives dignity and worth to humanity. Later, when you are out in practice, opportunity will come to you again, but it will not be the same opportunity.

The Good Book says "With all thy getting, get understanding." For the physician, as well as for others, the one thing needful in getting understanding, is the profound conviction that there is in every human being something worth trying to understand.

There is but one more virtue the physician need possess on which I shall dwell: it is the quality of method. Used in the limited sense, it is only method that makes the life of the busy physician tolerable: systematic, scientific, thorough effort. As a rule physicians are methodical in some parts of their lives and in others notorious for lack of system. By method I mean something akin to style, said to be the man himself, yet not quite so intimate, so personal as that, though it is indeed the way a man does his work, lives his life.

Since I can find no words of my own that begin to tell you what I mean so well as do the words of another, I am going to quote from the Inaugural Address of Lord Acton, when as Regius Professor of Modern History at the University of Cambridge, he spoke on the Study of History. He spoke as one historian to others, noting considerations to which they should all give attention. We physicians also may listen to his words and may well take to heart what he says.

"Apart from what is technical, method is only the reduplication of common sense, and is best acquired by observing its use by the ablest men in every variety of intellectual employment. Bentham acknowledged that he learned less from his own profession than from writers like Linnaeus and Cullen; and Brougham advised the student of law to begin with Dante. Liebig described his Organic Chemistry as an application of ideas found in Mill's Logic, and a distinguished physician not to be named lest he should hear me, read three books to enlarge his medical mind: and they were Gibbon, Grote and Mill. He goes on to say 'An educated man cannot become so on one study alone, but must be brought under the influence of natural, civil and moral modes of thought.' I quote my colleague's golden words to reciprocate them. If

men of science owe anything to us, we may learn much of them that is essential. For they can show how to test proof, how to secure fulness and soundness in induction, how to restrain and employ with safety hypothesis and analogy. It is they who hold the secret of the mysterious property of the mind by which error ministers to truth, and truth slowly and irrevocably prevails. Theirs is the logic of discovery, the demonstration of the advance of knowledge and the development of ideas, which as the earthly wants and passions of men remain almost unchanged, are the charter of progress and the vital spark of history. And they often give us invaluable counsel when they attend to their own subjects and address their own people. Remember Darwin taking notes only of those passages that raised difficulties in his way; the French philosopher complaining that his work stood still because he found no more contradicting facts; Baer who thinks error treated thoroughly nearly as remunerative as truth, by the discovery of new objections; for as Sir Robert Ball warns us it is by considering objections that we often learn. Faraday declares that 'in knowledge, that man only is to be condemned and despised who is not in a state of transition.' And John Hunter spoke for all of us when he said, 'Never ask me what I have said or what I have written; but if you ask me what my present opinions are I will tell you'."[13]

Lord Acton is speaking of method in the grand manner, but I ask you to note that what he is talking about is imitation, learning from others, as he says "observing the use of method by the ablest men in every variety of intellectual employment." To this element in higher education we pay too little attention, I am sure.

In this connection, I must say a word about research. Of the value of the results of research it is impossible to speak too highly. Research must be encouraged and prosecuted if we are to progress and that means if we are to live. I wonder if we are preparing the ground in the best way for the growth and flowering of research. The seed we sow and the good ground bringeth forth some thirty, some sixty, and some a hundred fold, but we cannot tell the good ground from the thin soil. I like to think of the early work of Louis Pasteur whose memory is so closely associated with this medical school. The approach to these beautiful and impressive buildings is by an avenue which bears his name. In the Administration Building in bronze he greets all who enter its portals. His words are inscribed on the walls of your dwelling place. Though a chemist, his contributions to knowledge and method, with those of Koch, marked a new epoch in medicine. Notice how he began. "In order to familiarize himself with crystals, Pasteur decided to repeat some important research in this field—a method which may well be recommended to all who are in training for research work."[14]

We rightly prize originality highly, but we have paid too little attention to determining the conditions under which it develops. It may be as the wind which bloweth as it listeth, but even that is not entirely beyond our understanding.

In considering but one aspect of the care of the patient, much that is essential has been omitted: both extensive and intensive vision are necessary. But I trust that the suggestions which I have made, based on my own experience, may prove not unprofitable for you, as you work out for yourselves your own philosophy of the practice of medicine.

In closing I return to the point from which I started: The Care of the Patient *is* the Religion of the Physician. Though we no longer subscribe formally to the Hippocratic Oath, we are nevertheless bound together by a common devotion, expressed so well in those words which have come down to us through the ages,—according to our ability and judgment . . . for the benefit of our patients . . . passing our lives and practicing our art with purity and holiness . . . with the seal of silence set upon our lips, so that whatever we see or hear in the life of man, which ought not to be spoken of abroad, we will not divulge.

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THE NEW HAMPSHIRE MEDICAL SOCIETY

TUMORS OF THE BREAST*

BY DEAN LEWIS, M.D.†

I CAME here to-day and looked at your program. I see that I am down for an address. I asked your President what I should talk about, and he said, "Talk about anything." So I have some leeway. I looked at this afternoon's program, and I noticed that one of the subjects is, "Diagnosis and Treatment of Breast Cancer." Well, I had made up my mind to speak about breast tumors, and I think I can keep away from the cancers, because there is enough in the breast, without cancer, to keep us busy for some time.

I was very much interested to hear Dr. Friborg's paper. It shows how far and how rapidly we have advanced within the last few years.

Now, we have heard this morning about the pregnancy test, and we will hear later, I hope, that ovarian hormones have a great deal to do with different changes in the breast. We have all realized for years that in puberty certain changes take place in the breast, which give rise to definite clinical syndromes. We have all realized that during the menstrual period there are changes in the breast which are sometimes a little difficult to separate off and understand.

Then, during the last few years, we have been paying more attention to ovarian hormones; folliculin, also known as estrin, and later on the ovarian hormone, and the association with the formation of corpus luteum. I think I will show pretty definitely that some of these have a very definite relation to changes in the breast, which we now recognize as cystic disease. It has been known for a number of years. Cooper described it. As a matter of fact, he is the first one who gave the appearance of the cysts. Brody made a very definite contribution of cystic diseases of the breast when he said that cystic disease of the breast was confined in the active sex life of the patient, and also, as far as he knew and had found out by clinical observation, cystic disease is much more common in unmarried women or women who have been married but who have never borne children. So that there is some very definite relationship in failure of lactation or absence of lactation.

There are several very definite types of disease. There is one in which the tubules are primarily involved. If I can have the lantern slides, I can show you that it is not uncommon to have these cysts disappear during lactation. You will also find cysts in the absence of menstruation.

You will see by this slide that the ordinary cysts of the breast, as pointed out by Brody, occur in the mid-zone of the breast. This is just the ordinary cyst formation that you find in the breast.

I would like to say something about the discharge of the nipple. It has been said frequently that hemorrhagic discharge of the nipple means malignancy, in fifty per cent of the cases. There is the straw-colored discharge, the black, bloody discharge and the bright red bloody discharge. When you have a serous discharge, it usually means one thing, a papilloma. Papillomas are usually situated beneath the areola. Papillomas are usually benign tumors.

Now, it is a question as to what to do with these. Some say, "Let them alone." Some say, "Apply x-ray." And, very frequently, I think it is best to remove them. You can locate them by making pressure upon the quadrant of the breast. If you reflect the areola, which usually has a blood clot, then you can trace it back and remove the papilloma. When you have a black discharge that is usually associated with these ducts which bleed and that blood is retained in the duct and isn't discharged immediately, so that it degenerates and becomes black, and when you have a black discharge, you usually associate it with cystic disease of the breast. Also, in my experience, a red discharge means malignancy. When we are talking about discharge, I think we have to differentiate the three types, and I think that they are pretty definitely associated with lesions in the breast, depending upon the discharge.

The next slide shows the papillary growths, which are ordinary cystic diseases of the breast. And here, the question that we have all known for years comes up about the different statements made about cystic diseases of the breast and what relation these have to ovarian extract. It has been shown pretty definitely, as far as experimentation is concerned, that theolin, the follicle extract, acts upon the tubules and dilates them. In the uterus, theolin prepares the uterine mucosa for conception. Theolin dilates the ducts and the periphery and you can see these changes. We have tissues removed during menstruation, under control. We have tissue removed from experimental animals, and also tissue removed from different tumors, benign and

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malignant. They have a relation to the menstrual cycle. And in all these you will find a very definite hyperplasia and also changes in the mucous membrane. There are also changes in the fibrous tissues.

The next slide shows just the ordinary type of cystic disease of the breast, and it has been said about malignancy that you never see a case of malignancy in a simple case of breast tumor.

Dr. Lewis continued with the showing of lantern slides on the subject of Breast Tumors, with explanations of the illustrations.

FRIEDMAN'S MODIFICATION OF THE ASCHHEIM-ZONDEK TEST*

BY JOSEPH N. FRIBORG, M.D.†

THE Aschheim-Zondek test for pregnancy depends upon the demonstration of substances in the urine of pregnant women which, when injected into immature mice, produce characteristic changes in the ovaries. The substance in urine responsible for this reaction is thought to be a hormone from the anterior lobe of the pituitary body.

In 1909 Erdheim and Stumme showed that a definite change took place in the anterior lobe of the pituitary gland during pregnancy. In 1922 Evans and Long produced an increase in weight of the ovaries in non-pregnant rats by intraperitoneal injections of fresh extract of the anterior lobe of the pituitary. In 1927 Zondek and Aschheim showed that there was an increased amount of anterior pituitary hormone present in the urine of pregnant animals, and that, when this urine was injected into immature mice, it also would produce changes in the ovaries. In 1928 Aschheim and Zondek isolated from the anterior pituitary gland a water soluble substance called "prolan" which, when injected into immature female mice, produced ovulation with characteristic formation of corpora hemorrhagica and corpora lutea. Considerable experimentation was tried to produce the same reaction in the ovaries with other substances, such as tissue extracts, internal secretions and proteins, but all failed with the exception of anterior pituitary hormone. Later, Aschheim did produce similar changes in the ovaries by implantation of decidua, corpus luteum, placenta, amniotic fluid and embryo.

It is this substance, namely, anterior pituitary hormone or a substance which simulates it, that is found in urine of pregnant women and, when injected into immature mice, causes ovulation and determines pregnancy.

The Aschheim-Zondek Test requires five immature mice, ranging from the ages of three to five weeks and weighing six to eight grams each. Each mouse receives doses of urine varying from .2 to .4 cc. and usually each mouse receives six injections during a period of thirty-six to forty-eight hours. At the end of 100 hours, the animals are killed and the ovaries are examined for the hemorrhagic follicles or corpora lutea, which is considered a positive test of pregnancy in the woman from whom the urine was obtained.

The test, however, has certain distinct disadvantages despite its high degree of accuracy, which are as follows:

First: One must constantly breed these mice in order to have a sufficient supply on hand for this test. When the mice are twenty-four days old, they have matured and are of no further value.

Secondly: It requires five mice for each test, and several injections into each mouse over a period of two to three days.

Thirdly: The requirement of time, being 100 hours, is occasionally a distinct disadvantage; especially in pregnancy cases such as suspected cases of extra-uterine pregnancy.

A more recent method has been brought forth which entirely eliminates these disadvantages. It is known as Friedman's Modification of the Aschheim-Zondek Test. It has the same fundamental reactions, accuracy, and much simpler technic. The animal used for this test is the rabbit. A single animal is all that is necessary for each test. The ovaries of an unmated female rabbit contain neither corpora hemorrhagica nor corpora lutea, since the rabbit ovulates only after coitus. The rabbit's sexual organs respond quickly and strongly to the pituitary hormone in the pregnant woman's urine. Any rabbit doe will do for the test providing it is more than three months old, is not pregnant, and has not had coitus within eight days of the test.

The normal ovary of a young untreated female rabbit appears as a small bean-shaped organ. It is firm and elongated, measuring approximately one centimeter in length and about one-third of a centimeter in width. Upon close examination, one can detect several closely situated, minute, colorless, unruptured, developing follicles. After the intravenous injection of a pregnant woman's urine, the picture of the ovaries becomes strikingly changed. The ovaries change to a pinkish color, become soft, edematous, and congested. The undeveloped follicles,

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which normally are very small, become distended and some of the follicles project like cysts. These are filled with blood and are recognized as corpora hemorrhagica, so characteristic of pregnancy. Many of the very young follicles are unchanged, but the more mature follicles are extremely dilated. The next change seen is the transformation into lutein cells.

This striking change is the basis of diagnosis in determining the presence of pregnancy. After taking a glance at a few gross specimens, it becomes a very easy matter to determine a positive from a negative case.

We have used the Friedman test in all our cases according to the method described below:

The technic consists of isolating each new female rabbit in a separate cage and so having them remain until eight days have passed. We have only used rabbits that are between the ages of three to five months and weighing at least four pounds. An uncatheterized morning specimen of urine from the patient is collected in a clean bottle, and if not used immediately, a pinch of boric acid is added as a preservative. The urine is then tested with litmus paper and if found alkaline, it is acidified with acetic acid. Ten cubic centimeters of urine is then injected slowly into the posterior marginal vein of the rabbit's ear. Forty-eight hours later, the animal is given ether anesthesia, and is then strapped to an improvised table elevated so that the intestines and oviducts drop toward the diaphragm. The hair is clipped short in the lower portion of the abdomen and an antiseptic solution applied. A two and one-half inch incision is then made in the median line and the ovaries are brought into view. A gross examination is made to determine if the ovaries contain either fresh corpora lutea or bulging corpora hemorrhagica, and, if so found, the patient furnishing the sample of urine is presumably pregnant. If the ovaries contain neither corpora lutea nor hemorrhagica but only clear unruptured follicles, regardless of their size, the reaction is negative and the assumption is that the woman is not pregnant. The incision is then closed with either plain or chromic catgut and no dressing is applied. As a group, the animals do very well. We use the same rabbits for subsequent tests on all negative cases.

We have conducted sixty-eight laboratory tests according to the technic just described. Interpretation has been done by gross examination only, and the results have been very favorable. Six of the sixty-eight cases could not be checked up as the patients failed to report back to their respective doctors and their whereabouts have become unknown. Therefore, these six cases will not be considered in this series.

The first group of ten cases studied were obtained from women that were known *not* to be pregnant. This afforded us an opportunity to familiarize ourselves with the appearance of a normal rabbit's ovary, to improve our technic and learn the anatomical landmarks necessary in this work.

The second group of ten cases studied were made from urines obtained from women with the diagnosis definitely established to be pregnant. This gave us an opportunity to make comparisons from normal cases. The comparison was very striking.

The forty-two cases studied in the third group were diagnosed from unknown cases, in other words, from specimens submitted by physicians because the diagnosis was clinically uncertain, also from cases of unknown sources, from questionable cases of incomplete miscarriage, and one urine from a questionable case of ectopic pregnancy.

In reviewing these cases, the end-results were rather interesting. From the first group of ten cases that were analyzed from urines of non-pregnant women, one case showed a strongly positive reaction. Her last period was about two weeks prior to the test. About three months later she came to my office and engaged me to take care of her through her pregnancy. She was delivered in March of this year, the date of confinement being consistent with a two-week pregnancy at the time of the test. The remaining nine cases were all negative.

The second group of ten cases of known pregnancies were urines obtained from women ranging from three to eight and a half months pregnant. These cases were all positive showing typical, pinkish, edematous ovaries with bulging corpora hemorrhagica consistent with pregnancy.

The third group of forty-two cases of unknown pregnancies have all been followed up to corroborate our findings with the outcome of the case whether pregnancy did or did not exist. Eighteen cases that showed positive reactions were carefully checked and all proved to be correct with the exception of one case that did not continue, or prove to be pregnant. This woman who always had regular periods, had amenorrhea one and one half months when the test showed a positive reaction. She then commenced flowing irregularly for ten days. At no time did she flow profusely, but a distinct change in character and a slight odor was noticed. The following month she became regular in her menses again, and has so continued until the present time. In reviewing this case, I believe that the patient might have been pregnant, and miscarried, although no definite proof excepting this test existed. However, on account of this uncertainty, I have classified this case as an error.

The twenty-four cases showing negative reactions were all verified to be correct with the exception of one case which proved to be pregnant in spite of a negative Friedman test. This

woman's last menstrual period was October 14, 1933. The pregnancy test was performed November 17, 1933, thirty-three days after her last regular period with negative findings. The test was repeated November 28, 1933, and the reaction then was strongly positive. I believe what appeared to be the primary cause might be accounted for by lack of hormone in the woman's urine as it was an extremely early case. Although it is a well-established fact that the exciting hormone rises very rapidly a short time after pregnancy takes place, conception might have occurred a few days prior to her expected period which should have been about four days before the test was performed.

In this series of sixty-two cases reported, sixty cases were found to be correct and two cases are considered erroneous giving a percentage of 96.8 per cent accuracy.

Several cases are worthy of more detailed consideration as they illustrate the practical value of the test.

CASE No. 1. A woman, aged 24, whose periods had always been regular in spite of an active tubercular lesion in one lung, was at this time being considered as a suitable case to collapse the infected lung by cutting the phrenic nerve. She had amenorrhea for nearly two months when pregnancy was suspected. The Friedman test was positive. On consultation and advice of three reputable physicians, therapeutic abortion was performed.

CASE No. 2. A very large woman, single, weighing about 250 pounds was sent to a local hospital with persistent vomiting and with diagnosis of partial obstruction. History revealed that she had failed to menstruate the preceding month. Pelvic examination was unsatisfactory on account of obesity. The test for pregnancy was strongly positive. She was permitted to return home.

CASE No. 3. A primipara consulted a physician for the first time when she was about five months along in pregnancy. Urine examination as regards albumin was negative. Two weeks later she reported to her physician on the second occasion and a large amount of albumin was found. The physician suspected death of the fetus. The Friedman test was done and found to be negative. The fetal prognosis was given to the family. About two weeks later the patient miscarried, spontaneously, a macerated fetus.

CASE No. 4. A married woman with one child had amenorrhea for six weeks when she commenced to have irregular and intermittent staining. About this time she had sharp pains in the lower left pelvic region. The Friedman test for pregnancy was strongly positive. The surgeon operated and found an unruptured ectopic pregnancy in the left fallopian tube, which he removed.

CASE No. 5. A woman with one child had moderate menorrhagia for one month preceding a period of amenorrhea for six weeks. She was kept in bed most of this time thinking pregnancy was present. She was very desirous of having a second child. Pelvic examination was of no aid in arriving at a diagnosis in this case. The test for pregnancy showed a negative reaction. A curettage was done and a pathological diagnosis of hypertrophied endometrium was made.

CASE No. 6. A girl of thirteen years of age, very well developed and rather obese, had menorrhagia for two weeks. Because of her unnatural overweight, she was treated for menorrhagia of puberty and given glandular therapy. No improvement being noted in her condition, the test for pregnancy was done with positive findings. She miscarried a few days later.

CASE No. 7. A woman definitely known to be pregnant in her second month. She commenced flowing quite large clots. No fetus or placental tissue had been seen at any time. The uterine os was not dilated. The test for pregnancy was positive. The patient was kept in bed for one week. Flowing continued but much less in amount. The pregnancy test was repeated after one week. It showed a negative reaction. A justifiable curettage was then performed.

This type of case, known as a threatened abortion, frequently annoys the physician or surgeon as to the proper procedure to follow. The Friedman test will remain positive as long as there is living placental tissue in contact with the maternal blood. As soon as the test becomes negative, a curettage or other treatment may be resorted to as indicated, as one may assume that the fetus is dead.

Up to the present time, most authors are of the opinion that the Aschheim-Zondek Test or its modifications constitute the most accurate method for establishing the earliest possible diagnosis of pregnancy.

The outstanding values of this test may be summarized as follows:

First: To differentiate pelvic tumors and pregnancy.
Secondly: To aid in determining presence of extra-uterine pregnancy.
Thirdly: To terminate pregnancy early where physical organic disease exists which would threaten the mother's life.
Fourthly: To determine illegitimate pregnancy early.
Fifthly: To differentiate primary and secondary amenorrhea.
Sixthly: As an aid in determining viability in threatened miscarriage.

And finally, there are a great many women who simply want to know whether they are pregnant, and by this test they can be informed within forty-eight hours instead of waiting two or three months for accurate information.

To summarize, an attempt has been made to show the value of a test based upon a hormone found in pregnant women's urine described by Aschheim and Zondek, and later modified by Friedman and his co-workers to simplify the technic but still maintaining the high degree of accuracy. Out of a series of sixty-two cases reported, performed by Friedman's modification, 96.8 per cent had correct results. Seven individual cases have been cited which illustrate the practical value of early diagnosis in pregnancy. Statistics obtained from centers throughout this country and Europe indicate a very high percentage of accuracy of tests performed accord-

ing to the technic described by Aschheim and Zondek or its modifications. The test has established itself as another laboratory aid in producing more accurate diagnosis with resultant rational therapeusis.

DISCUSSION

PRESIDENT GRAVES: This paper is to be discussed by Dr. Benjamin P. Burpee of Manchester, N. H.

DR. BENJAMIN P. BURPEE: Dr. Friborg is to be congratulated on his paper, not only for his initiative in starting this work, but also upon the very accurate results he has obtained. I know that I have given him some fifteen or twenty urines, all of which were unknown, and I have done my best to deceive him with them, but I have not been able to do so. He has been a great help to other members of the hospital staff, not only to those who are doing obstetrical work, but also to the surgeons in the other conditions, such as ectopic pregnancy.

There has been a great deal written in the literature the last two or three years regarding this test, and the writers agree quite generally that it is nearly one hundred per cent accurate. They also agree that it is much more accurate than the Aschheim-Zondek Test. Most of the false negatives that have been reported, anywhere from two to eight or ten per cent, were false tests that have been reported, and have apparently been due either to the use of immature rabbits or to the use of rabbits physically unfit.

It is rather difficult to offer anything that has not already been brought out in the paper, without actually going into the surgical conditions.

The most recent report on the Friedman test that I have seen had to do with the different types of reaction and are found in the rabbits' ovaries, known as the H. V. R. 1, 2, 3; reaction 1, being a simple follicle formation, which, of course, is a negative test; type 2 being the formation of hemorrhages in the follicles; type 3 being the formation of corpora lutea. This also showed that the hormone responsible for the test was entirely on the maternal side of the placenta, and did not occur on the other side and the only positive reactions were the type 1, which are negative.

Spellman of Mount Sinai has made certain interesting deductions as to certain conditions that in his opinion must be fulfilled to give the most accurate results. He believes that the urine must be kept on ice in order to prevent a sufficient amount of toxicity to kill the rabbit when the injection is made. Dr. Friborg tells me that he has not done that. He has never had any rabbits die when injected, although some have reacted very strongly.

It is interesting to note that one author also mentions that he kept a urine for one year on ice, and that it still gave a positive reaction at the end of that time. Spellman also believes that the rabbit should be fully matured and should have been isolated for at least thirty days before being used. He believes it is better to use two rabbits for each test, and cites the fact that out of six hundred and thirty-five cases, twenty-two of them showed a difference in the reaction, that is, one rabbit was negative and the other positive. Of course, that simply doubles the amount of work and the amount of expense, and probably is not necessary. But, one advantage in using two rabbits is the fact that one of them can be used at the end of thirty-six hours and the other at the end of forty-eight hours, although this forty-eight hours should be the minimum time, usually, for an accurate diagnosis.

The chief importance of this test, of course, lies in the very large number of cases where the patient either is unwilling to believe herself pregnant, after skipping one period, or where the diagnosis is uncertain, as it usually is at that early stage.

I am particularly interested, from an obstetrical viewpoint, in what is to be the practical applicability of this Friedman test, in cases of toxemia and incomplete miscarriage, and in determining whether the fetus has died. Of course, in the vast majority of suspected cases of fetal death, either from toxemia or from incomplete miscarriages, it is perfectly obvious from the clinical signs whether the fetus is dead or alive. But there does occur an occasional case where the diagnosis is not certain.

At the present time, there are apparently no figures available as to just when this test becomes negative, following fetal death. We can only say in general that the test remains positive as long as there is any living tissue in contact with the maternal circulation. That may be three, four, or five days, or even longer. However, this is not exactly so. I have had one case of toxemia only from which to judge this time. That was the five months' toxemia which Dr. Friborg referred to in his paper, and we are fairly definite in assuming that the story of the patient, who is a graduate nurse, was true, that the fetus had been dead for five days at the time that the Friedman test was done.

The matter of time, as to how much time does elapse, is going to be of importance in influencing the treatment, as between induction on a borderline case around seven months, or expectant treatment, where you know the baby is dead.

In two cases of incomplete miscarriage which I checked up, both of about two months, there was a considerable variance. One was negative two days after the abortion occurred, and in the other the test was still positive three days after apparent miscarriage, but was negative in ten days.

There is much work yet to be done in these two classes of supposed fetal death, and I think that it will be of importance in determining the therapeutics of the case.

In closing, I would emphasize the importance and ease of doing this Friedman test and the advantage of having some one in each community, who knows the technique and can do it.

DR. JOSEPH N. FRIBORG: There is nothing further to be added to this, I believe. Are there any of the men who would be interested in seeing this laparotomy performed? I am doing a test at my office at one o'clock this noon. I would be very glad to have any one come who cares to do so.

MISCELLANY

The dates of the next annual meeting of the New Hampshire Medical Society have been changed to Tuesday and Wednesday, May 7 and 8, 1935. The meeting will be held at the Hotel Carpenter, Manchester, New Hampshire.

The Committee on Public Relations, Public Policy, and Legislation of the New Hampshire Medical Society met at the Eagle Hotel, Concord, New Hampshire, on Thursday, October 11, to discuss various medical questions which will probably be entertained at the coming meeting of the General Court. The members of the committee are Samuel T. Ladd of Portsmouth, Chairman; Frederic P. Lord of Hanover, John F. Gile of Hanover, Charles Duncan of

Concord and Carleton R. Metcalf of Concord. All the members of the committee were present at this meeting.

COUNTY MEETINGS

Rockingham County Medical Society

The annual meeting of the Rockingham County Medical Society was held at the County Hospital, Brentwood, New Hampshire, on October 25. Papers were read by Dr. Chester S. McGill of Portsmouth, Dr. Donald W. Leonard of Exeter and Dr. G. E. Haggart of Boston. Dr. McGill spoke on "Pyloric Stenosis," Dr. Leonard on "The Use of Motion Pictures in Medicine" and Dr. Haggart on "Management of Fractures." Dr. Carleton R. Metcalf of Concord reviewed the question of "Sickness Insurance."

Strafford County Medical Society

The annual meeting of the Strafford County Medical Society was held on October 26 at Gray Tower Motor Inn, Rochester, New Hampshire. Addresses were made by Dr. Frederic P. Lord of Hanover, President of the New Hampshire Medical Society; Dr. Carleton R. Metcalf of Concord, Secretary, and Dr. G. E. Haggart of Boston.

Hillsborough County Medical Society

The thirtieth annual meeting of the Hillsborough County Medical Society was held at the Nashua Country Club on Tuesday, October 30. An address was made by the President of the New Hampshire Medical Society, Dr. Frederic P. Lord. Dr. Chester M. Jones of Boston read a paper on "The Diagnosis and Treatment of Diseases of the Liver." Dr. John Rock of Boston spoke on "Useful Endocrine Preparations in Gynecology." Dr. Carleton R. Metcalf of Concord reviewed the question of "Sickness Insurance."

Dr. Z. A. Lavole of Manchester was elected president of the Hillsborough County Medical Society. About fifty physicians attended. Dr. H. H. Dearborn of Milford was elected vice-president and Dr. Deering D. Smith, of Nashua, secretary-treasurer.

Belknap County Medical Society

The Belknap County Medical Society has issued the following program for 1934-1935: December, Laconia Tavern, 6:15 P.M. Meeting in charge of R. W. Robinson. January, Laconia Tavern, 6:15 P.M. Meeting in charge of Dr. P. R. Hoyt. February, Laconia Tavern, 6:15 P.M. Meeting in charge of Dr. Melba Stewart. March, Laconia Tavern, 6:15 P.M. Meeting in charge of Dr. A. P. LaFrance. April, Laconia Tavern, 6:15 P.M. Meeting in charge of Dr. C. L. Smart.

Grafton County Medical Society

The thirty-first annual meeting of the Grafton County Medical Society was held at the Dartmouth Medical School, Hanover, on October 13.

President Dwinell (Bradford, Vt.) was in the chair. John C. Eckels, Lisbon, and John L. Firomer, Bethlehem, were elected to membership. A report of the last meeting of the House of Delegates was read by Kenneth Churchill.

The following committees were appointed by the president: Public Health and Legislation: K. Churchill, Lebanon; E. M. Miller, Woodsville; H. L. Johnson, Franconia. Advisory to Women's Auxiliary: R. M. Deming, Glencliff; J. F. Gile, Hanover; F. V. V. Wethey, Enfield.

The following officers were elected by the Society for the ensuing year: President: R. M. Deming, Glencliff. Vice-President: R. G. Perry, Wells River, Vt. Secretary-Treasurer: L. K. Sycamore, Hanover. Censors: F. E. Spear (one year), Woodsville; John M. Page (two years), Littleton; A. W. Burnham (three years), Lebanon. Member Committee on Medical Jurisprudence: A. T. Downing, Littleton. Delegates: E. M. Miller (one year), Woodsville; L. K. Sycamore (two years), Hanover.

The speakers at the meeting were: F. P. Lord, Hanover, President of the New Hampshire Medical Society; J. J. Boardman, Hanover, on "Uterine Hemorrhage," and Donald S. King, Boston, on "Newer Developments in the Treatment of Pneumonia."

PERSONAL ITEMS

Dr. George H. Whipple, one of the three American physicians who have been awarded the 1934 Nobel prize in medicine, is a native of Ashland, New Hampshire. Dr. Whipple was graduated at Johns Hopkins University School of Medicine and has been dean of the University of Rochester, School of Medicine, since 1921. He was formerly associate professor of pathology at Johns Hopkins, professor of research medicine and director of the Hooper Foundation for Medical Research at the University of California medical school and was for two years dean of that school.

Dr. and Mrs. E. J. Roberts of Laconia entertained many friends on October 6 in honor of their twenty-fifth wedding anniversary.

Dr. and Mrs. Maurice G. Wiley of the Weirs returned on October 8 from Deadwood, South Dakota.

Dr. George R. Eades of Keene and Miss Augusta V. Hebert, daughter of Mr. and Mrs. Arthur A. Hebert of St. Louis, Mo., were married on October 4 at the summer home of Dr. and Mrs. O. H. Hubbard in Gilsum. Dr. Eades is a member of the staff of the Elliott Community Hospital.

Dr. and Mrs. A. W. Hopkins of West Swanzey have returned from a trip to Havana, Cuba.

Miss Eunice Patch of Francestown, former direc-

tor of state welfare relief in New Hampshire, has been appointed budget analyst for the rural rehabilitation work of F.E.R.A. and took up her new duties at Washington early in October. The position was created recently and is under Col. Lawrence Westbrook, assistant F.E.R.A. administrator in charge of rural rehabilitation, to whom Miss Patch will submit her reports. Miss Patch was the first head of state relief work in New Hampshire under the legislation enacted in 1933.

Charles D. Howard, director of the division of sanitation and chemistry of the New Hampshire State Board of Health, has been informed of his election to the Worcester Polytechnic institute chapter of the Sigma Xi fraternity. This society admits to membership only men credited with outstanding scientific achievement. Mr. Howard has achieved a national reputation as an authority on food standards.

Dr. Benjamin W. Baker described the Laconia State School of Feeble-Minded, of which he is superintendent, to the members of the Laconia Business and Professional Women's club at a meeting on October 9. The school has at the present time 565 inmates, seventy of whom are epileptics. Handwork that the boys and girls have done, including rugs, basketry and wood working were on display. The girls are taught to cook, launder and sew and 100 of them are now doing these types of work in private homes.

Dr. Robert B. Kerr of the New Hampshire Tuberculosis Association examined eighteen adults and thirteen children at the tuberculosis clinic in Claremont, October 16. Five positive and two suspicious cases of tuberculosis were found among twenty new persons attending the clinic.

Dr. W. J. Paul Dye of Wolfeboro was one of two New Hampshire doctors to become Fellows of the American College of Surgeons at the recent convocation in Boston.

HOSPITALS AND NURSES

On Thursday afternoon, October 11, nurses from the entire County gathered at the County Court House at Berlin for the initial lecture of a Study Course, which Mrs. Mary D. Davis of the State Board of Health is bringing to this group. Fifty-three nurses came from Lancaster, Groveton, West Stewartstown, Lincoln, Gorham, West Milan and Berlin, with one from Montreal. A permanent organization of Coos County Nurses is being formed, with the objective, to further professional knowledge among its members.

Wednesday, October 17, was observed as "Donation Day" in the communities served by the Mary Hitchcock Memorial Hospital of Hanover and on this day nearly fifty towns and villages in New Hampshire and Vermont canvassed their citizenry for contributions of foodstuffs and money toward the support of the hospital.

The Donation Day plan, which in past years has proved an invaluable aid in permitting the hospital to care adequately for those who seek its service, netted $2,765.39 in cash and $951.46 in canned goods and farm products a year ago.

The Public Health nurses of Cheshire and Sullivan counties gathered at the Elliot Community Hospital of Keene October 19 for a sectional meeting. Miss Maxine Rogers of Swanzey, district nurse, presided. Mrs. Mary Davis of the state board of health spoke about the advanced educational work for nurses which will be sponsored by the state board of health the coming winter.

A hundred graduate nurses took examinations for state certificates and registration in Concord during the week of October 15.

Twenty-one hospitals in New Hampshire were approved by the American College of Surgeons in its current annual report.

The Memorial Hospital at North Conway reported on October 4 that the total collections for its hospital fund amounted to $1738.55.

The annual graduation of nurses from the training school of the Woodsville Cottage Hospital took place on September 27. Two graduates received their diplomas. The address of the evening was given by Dr. R. S. Perry, Sr., of Wells River, Vermont. The presentation of diplomas was made by Dr. F. P. Dwinell of Bradford, Vt.

Dr. John C. Eckels of Lisbon addressed nine graduates of the Littleton Hospital School of Nursing at their commencement exercises on October 4.

The Elliot Community Hospital of Keene has added a three months' training course for its nurses in children's work in affiliation with the Boston Floating Hospital.

The Laconia Hospital has recently added a new wing to its main building. The hospital is now equipped to care for eighty patients.

The graduation exercises of the training school at the Laconia Hospital were held on October 23. Seven nurses received diplomas.

The first of the fall cancer clinics was held in Elliot Community Hospital in Keene on Wednes-

day, October 24. The clinics have already proved valuable, thirty-seven persons having reported for advice and examination.

The Margaret Pillsbury General Hospital of Concord observed the fiftieth anniversary of its establishment on October 20. This was the first general hospital in the state. For seven years the institution was maintained with difficulty; and it was not until 1890 that there was real assurance of permanence. It was in that year that George A. Pillsbury of Minneapolis, Miss., a native of Sutton, in this state, and for years in his younger manhood a resident of Concord, gave money for a new, brick building. Ground was broken in September, 1890, and the building was ready for occupancy December 15, 1891. Dedication was on October 15 of that year, when the institution was named the Margaret Pillsbury Hospital in honor of George A. Pillsbury's wife. A training school for nurses was established in 1889, and this steadily has grown in attendance and in the quality of instruction given. The whole plant was greatly enlarged in 1926 and 1927.

RECENT DEATH

STONE — MELVIN TICHNOR STONE, M.D., of Troy, New Hampshire, died November 23, 1934, after a protracted illness. He was born at West Boscawen, New Hampshire, in 1854, the son of Hiram and Mary (Tichnor) Stone. After a premedical education at New Hampton Academy, he studied medicine graduating from the Dartmouth Medical School in 1880. He was a member of the New Hampshire Medical and the Cheshire County Medical Society.

He was active in civic affairs, having served as town clerk of Troy for many years, was a member of the water board, formerly served on the school committee, and had represented his town in the legislature and twice as a member of constitutional conventions.

He was a Mason and Odd Fellow. At the time of the campaign for the Medical Center in Boston, Dr. Stone was given a prominent position at the public meeting as a representative family doctor.

He married Cora M. Whiting in 1880. She died two years later. Dr. Stone is survived by his daughter, Miss Mildred Stone, who lived with him, and a sister, Mrs. Ina Morrill, of Laconia, New Hampshire.

MEDICAL PROGRESS

CARDIOVASCULAR REVIEW FOR 1933

(Continued from page 1059, Issue of December 6)

BY PAUL D. WHITE, M.D.,* AND HOWARD B. SPRAGUE, M.D.*

VASCULAR DISEASE (INCLUDING LESIONS OF AORTA AND PULMONARY ARTERY)

Cowdry has compiled a summary of our knowledge of arteriosclerosis by twenty-three contributors from various parts of the world, published in book form under his editorship. The introduction is by Aschoff. There are twenty-one chapters (1) The Development of Our Knowledge of Arteriosclerosis by Long, (2) The Structure and Physiology of Blood Vessels by Cowdry, (3) The Physical Properties of Arteries in Health and Disease by Bramwell, (4) Mineral Constituents of Blood Vessels by Policard, (5) Statistical Study of Arteriosclerosis by Sydenstricker, (6) Arteriosclerosis in Lower Mammals and Birds by Fox, (7) Race and Climate as Possible Factors by Stocks, (8) Nutrition in Relation to Arteriosclerosis by Weiss and Minot, (9) The Pathogenesis of Arteriosclerosis by Ophüls, (10) Experimental Arteriosclerosis in Animals by Anitschkow, (11) The Chemistry of Arteriosclerosis by Wells, (12) Acute and Chronic Infections as Etiological Factors by MacCallum, (13) Retinal Arteriosclerosis by Friedenwald, (14) Arteriosclerosis of the Brain and Spinal Cord by Cobb and Blain, (15) Coronary Arteriosclerosis by Karsner, (16) Sclerosis of the Pulmonary Arteries by Karsner, (17) Arteriosclerosis of the Abdominal Viscera and Extremities by Bell, (18) Hypertension in Relation to Arteriosclerosis by Lange, (19) Hereditary Aspects of Arterial Hypertension in Relation to Arteriosclerosis by Williams, (20) The Treatment of Arteriosclerosis by Wyckoff, and (21) Summary by Cohn. The volume is a useful reference book.

Cowdry, E. V., Editor: Arteriosclerosis. A Survey of the Problem. A Publication of the Josiah Macy, Jr. Foundation. New York: The Macmillan Company, 1933.

Aortic Pathology. Bayley found that in young individuals an alteration in the normal cardiovascular dynamics may bring about an enlargement of the aortic arch. The enlargement may be pronounced and may induce a relative insufficiency of the aortic valve. In patients with a cardiac neurosis the dilated aorta has been observed to return to normal size within a few weeks. This so-called dynamic dilatation is manifest clinically, but not at autopsy. The condition is far more common than the literature would indicate, and is of great importance because of the frequency with which it is mis-

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taken for aneurysm. Aortic enlargement of this type is commonly labeled aortitis, although no inflammation or organic disease of the vessel exists. The term aortitis so used is therefore misleading. In older people with aortic dilatation the diagnosis of aortic disease is usually correct, for here autopsy reveals fusiform enlargement and degenerative changes. When syphilitic infection is known to have occurred and substernal pain, paroxysmal nocturnal dyspnea and a ringing aortic second sound are present, the diagnosis of aortitis may be justified even when x-ray examination is negative.

One should hesitate to make the diagnosis of aortitis or aneurysm in young individuals simply because the aorta is enlarged; the enlargement is likely to be of the dynamic sort.

Cohen and *Davie* report a case of aortic aneurysm associated with bilateral obliteration of radial and carotid pulses in which an overgrowth of subintimal connective tissue appeared to be the cause of obliteration of the first part of the arterial trunks concerned.

Kellogg made a correct clinical diagnosis of dissecting aneurysm of the aorta in a case on the day of entry to the hospital. The diagnosis was made because of (a) sudden onset of pain, which was progressively spreading in character; (b) the evidence of interference with the arterial circulation to the lower part of the body, and (c) the supportive family history of vascular disease and (d) the past history of hypertension.

Necropsy revealed a dissecting aneurysm in the medial coat of the entire length of the aorta and the left common iliac artery, in association with a generalized arteriosclerosis and a hypertensive type of left ventricular cardiac hypertrophy. The dissection of the media was facilitated by an extensive obliterative sclerosis of the vasa vasorum which led to its profound degeneration. The reduction in number of elastic lamellae amounted to about forty per cent, when directly studied in comparison with the normal aorta of a young adult. Additional support is given to the theory that dissecting aneurysms are the result of an increased separability of the media due to its profound degeneration. This degeneration is not a disease entity but is secondary to arteriosclerosis, which has reached a summit in the nutrient arterioles of the aorta, rather than in the more frequent sites of the heart, brain, or kidneys.

Bayley, R. H.: Dynamic dilatation of the thoracic aorta. Am. Heart J., 8:585, 1933.
Cohen, H., and Davie, T. B.: Bilateral obliteration of radial and carotid pulses in aortic aneurysm. Lancet, 1:353, 1933.
Kellogg, F., and Heald, A. H.: Dissecting aneurysm of the aorta. Report of case diagnosed during life. J. A. M. A., 100:1157, 1933.

Pulmonary Arterial Disease. *Karsner* points out that productive cicatricial syphilitic disease of the pulmonary artery, that is, of the Döhle-Heller type, is extremely uncommon but occurs often enough to justify its consideration in clinical diagnosis. Eleven cases, anatomically proved by reasonably liberal interpretation, are now on record. Eight of these would be regarded as clearly established by the most exacting criteria. Gummatous types of lesion about equal the productive cicatricial type in incidence, but this ratio may be changed as additional cases are reported. The proportion of productively cicatricial to gummatous lesions is markedly higher in the aorta than in the pulmonary artery. All cases of productive-cicatricial lesions in the main stem of the pulmonary artery show local or diffuse dilatation of the vessel. Associated disease of the smaller pulmonary arteries is by no means constant.

White and *Brenner* have presented a survey of the pathological and clinical aspects of the pulmonary circulation including an analysis of the changes, gross and microscopic, found in the pulmonary arteries, veins, and capillaries of 100 consecutive patients of all ages with and without cardiac and pulmonary disease who came to autopsy at the Massachusetts General Hospital. The authors concluded that (1) all pulmonary blood vessels are subject to a wide variety of pathological conditions, (2) sclerosis is as common in the pulmonary circulation as in the systemic, and (3) pathology of the pulmonary blood vessels seems to influence very infrequently either symptoms, signs, or clinical course of disease.

This paper continues with a discussion of pulmonary heart disease (the cor pulmonale) which is rare and of pulmonary thrombosis and embolism which are common and ends with the important account of congestion or overfilling of the pulmonary circulation from heart disease (particularly failure of the left ventricle). The syndrome of gross pulmonary embolism is referred to with characteristic electrocardiograms.

Karsner, H. T.: Productive-cicatricial syphilitic disease of pulmonary artery. Arch. Int. Med., 51:367, 1933.
White, P. D., and Brenner, O.: Pathological and clinical aspects of the pulmonary circulation. New Eng. J. Med., 209:1261, 1933.

Cerebral Circulation. *Cobb* points out that "the idea that all cerebral arteries are 'end-arteries' arose from the fact that infarcts frequently occurred in the brain and that Cohnheim in 1872 had stated that infarcts could only occur in organs in which there was no anastomosis between arteries. Anatomical studies, however, have proved that there are many cross-connections between even the larger arteries of the brain and that the capillary bed of the brain is one great continuous network from occipital lobe to frontal pole. In spite of these vascular anastomoses, cerebral thrombosis does cause softening. The explanation is that relative anemia will cause nerve cells to degenerate; a complete anoxemia is not necessary. . . . Mild lesions are frequently all that one finds at autopsy to explain hemiplegia, aphasia, eclamp-

sia, and status epilepticus. And it should be added that few pathologists look for these mild ischemic changes. As a result many autopsies on patients suffering from these symptoms are reported as "negative"".

"It has recently been clearly demonstrated that the cerebral arteries have an anatomic nerve supply; this is true of the deep intracerebral vessels as well as of the superficial pial vessels. Moreover, physiological experiments have shown that there is both a vasoconstrictor and a vasodilator mechanism, stimulation of the cervical sympathetic nerve causing constriction of pial arteries, while stimulation of the vagus causes vasodilatation. Further study has shown that the cervical sympathetic nerve innervates only the ipsilateral cerebral hemisphere, but that the vagus has a bilateral effect."

"It seems from direct experiment on brain tissue that the brain has a rather high metabolism when compared with other organs, or with the body as a whole."

"Vascular spasm has long been a favorite clinical explanation of brief cerebral symptoms. Jackson saw constriction of the retinal arteries preceding epileptic attacks while Foerster, Penfield and others have seen actual areas of vasoconstriction in brains exposed at operation. There are also cases of Raynaud's disease with paroxysmal cerebral symptoms."

Penfield has reviewed forty-three operations in which electrical stimulation of the brain was carried out. "Of these cases seizures were produced in all but thirteen. In none of these thirteen cases of stimulation without attacks did there appear arterial constrictions, areas of anemia, flushing or other reasons for manifestations. These may serve to some extent as a control."

"During the seizure the almost invariably associated phenomenon is the arrest of visible pulsation in the arteries of the brain; the author employs magnifying lenses to observe these vessels. This cessation of pulsation is usually widespread and in such cases it has been observed on several occasions that the radial pulse also disappeared completely for a corresponding period." "In conclusion, the one constant, visible phenomenon in the brain during an epileptic seizure is cessation of arterial pulsation. Pallor may be present during a seizure but more often follows it. The epileptic brain is subject to local vasomotor reflexes such as have never been described in the normal brain. These changes further cannot be reproduced in animals according to as yet unpublished work carried out by Lyle Gage in the author's laboratories. Physiological instability of the blood vessels seems to be the abnormal state common to epileptics of all varieties."

Cobb, Stanley: The cerebral circulation. XXV. Remarks on clinical physiology. Ann. Int. Med., 7:292, 1933.
Penfield, Wilder: The evidence for a cerebral vascular mechanism in epilepsy. Ann. Int. Med., 7:303, 1933.

DISORDERS OF FUNCTION

Congestive Failure, Including the Use of Digitalis and Diuretics. Harrison has made a study of the cisternal pressure, the lumbar spinal fluid pressure, the systemic venous pressure, the vital capacity, the arterial blood pressure, and the pulse and respiration rates in the recumbent and upright positions in five patients without cardiac disease and in five patients with congestive failure. His findings were as follows:

"1. The arterial blood pressure and pulse rate were usually slightly greater in the sitting than in the prone position, but in general the blood pressure, and the pulse and respiration rates showed no marked consistent changes with position in either group.

"2. The systemic venous and lumbar spinal fluid pressures were greater in the sitting than in the prone position in each subject, and were much greater in each position in the patients with congestive heart failure than in the patients without cardiac disease.

"3. The vital capacity was greater in the sitting than in the prone position in both groups of cases and the percentile increase of vital capacity with change in position was greater in the patients with cardiac disease.

"4. The cisternal pressure was much greater in each position in the group with congestive heart failure than in the other group.

"5. The cisternal pressure was much less in the upright than in the recumbent posture in each case and this difference in cisternal pressure between the two positions was much greater in patients with congestive heart failure than in those without cardiac disease.

"As a result of these observations it is believed that in addition to the increase in vital capacity, the diminished cisternal pressure is an important factor in producing the relief of any dyspnea obtained in the sitting position. The mechanism of this effect is as yet unknown."

White has written of the importance of the recognition of left ventricular heart failure as follows: "Weakness and congestive failure of the left ventricle are common whether or not there is an associated right ventricular failure. It is important to recognize this fact and to be able to diagnose the condition since treatment by the administration of digitalis, by rest, or by both these measures is usually of great help, even though the heart rhythm is normal and even though there is no evidence of congestion of the systemic veins.

"The left ventricle is the primary site of strain four to five times more often than is the right ventricle, essential hypertension, myocardial infarction from coronary thrombosis (which rarely involves the right ventricle), and aortic valve disease exceeding in total frequency mitral stenosis, pulmonary valve stenosis, and pulmo-

nary disease sufficient in degree to be a strain. Cases of heart failure without obvious factors of strain like those mentioned are not common. The most frequent cause of strain on, and enlargement and failure of, the right ventricle is left ventricular failure.

"There are several important symptoms and signs that point to weakness and failure of the left ventricle and which should permit its recognition in the absence of mitral stenosis and congenital heart disease; they are (1) cardiac dyspnea, (2) cardiac asthma or acute pulmonary edema, (3) diminishing vital capacity due to heart disease, (4) engorgement of the roentgen shadows of the lung hilus blood vessels, (5) protodiastolic gallop rhythm at the cardiac apex in the absence of heart block, (6) pulsus alternans, and (7) increasing accentuation of the pulmonary second sound. The failure in the past easily to visualize congested blood vessels in the lungs undoubtedly accounts for the unwarranted preponderant emphasis placed on increase of systemic venous pressure in congestive heart failure."

Harrison, W. G., Jr.: The cisternal pressure in congestive heart failure and its bearing on orthopnea. J. Clin. Investigation, 13:1075, 1933.
White, P. D.: Weakness and failure of the left ventricle without failure of the right ventricle; clinical recognition. J. A. M. A., 100:1993, 1933.

Digitalis Action. *Christian* has discussed the application to the treatment of heart disease of our knowledge of the pharmacology of digitalis. He believes that tonic doses of the drug may be of value not only for the maintenance of heart tone but also for the prevention or delay of occurrence of cardiac enlargement itself when the heart is under strain from hypertension or valvular disease.

Edens' volume on digitalis therapy is an instructive and useful work, well arranged and well written. It is particularly prepared for the clinical worker and gives a satisfactory summary of experimental work.

Christian, H. A.: The pharmacology of digitalis in relation to the therapy of heart disease. New Eng. J. Med., 208:66, 1933.
Edens, E.: Die Digitalisbehandlung. 2nd Edition. Berlin and Vienna: Urban and Schwarzenberg, 1933.

Angina Pectoris. *Brow* and *Holman* have reviewed the electrocardiographic changes in a patient during an attack of angina pectoris and found them to be characteristic of those often seen in acute myocardial infarction. After two minutes the curve had returned essentially to normal. The changes, the authors believe, were due to anoxemia of the cardiac muscle not involving the conduction pathways. They were unable at that time to find a similar case in the literature. The changes were typical of those they encountered in animal experiments with cardiac anoxemia, similar in conformation and as transitory.

Following introductory remarks about former theories on the pathogenesis of pain in angina pectoris, *Dietrich* and *Schwiegk* have related their own observations, particularly their electrocardiographic studies during oxygen deficiency. These revealed that want of oxygen produces changes in the electrocardiograms of healthy persons, and that similar but more pronounced electrocardiographic changes were noticed in patients who were subject to attacks of angina pectoris. Development of pains similar to those of a spontaneous attack was also observed during oxygen deficiency in patients subject to angina pectoris. The authors think that during an attack of angina pectoris there exists an ischemia of the cardiac muscle and that not only the changes in the electrocardiogram but also the pains are a result of this ischemia. They consider it improbable that in addition to the oxygen deficiency there also exists a spasm of the coronary arteries because as long as anoxemia persists it is impossible to counteract the pain by administration of nitroglycerin. The authors hope that their method of deficient oxygen respiration will help also in differentiating various forms of angina pectoris, which would be important not only for the prognosis but also for the therapy.

Hamilton and *Robertson* reported the electrocardiographic studies of the dying heart of a man forty-nine years old with angina pectoris. The heart sounds were audible for three minutes after the onset of ventricular fibrillation. Adrenalin was injected into the heart eight minutes after the attack and there was a slight return of ventricular fibrillation waves. Autopsy showed no coronary thrombosis, myocardial, valvular, or pulmonary disease, but moderate arteriosclerosis of both coronary arteries, especially at the orifice of the descending branch of the anterior on the left side. The heart was not enlarged.

Rothschild and *Kissin* have induced anoxemia by rebreathing in twenty-six subjects with angina pectoris (impaired coronary circulation). Eighteen of the twenty-six experienced an attack of precordial pain. Twenty control subjects did not develop pain. The induced attacks were identical in character with the spontaneous attacks. Anoxemia was considered in part at least responsible for the pain of angina pectoris. The response to induced anoxemia may thus be of value in the diagnosis of impaired coronary circulation; only persons with angina pectoris experienced pain during anoxemia.

Shookhoff and *Lieberman* reported three cases having hypertension or symptoms and signs of cardiovascular degenerative disease, in whom the angina pectoris syndrome appeared one-half to three and one-half hours after the ingestion of five to ten grams of acetyl salicylic acid. In two of these patients there was an ac-

companying urticaria, with electrocardiographic changes also in one. The third patient had no accompanying allergic manifestations. The authors believe that the cardiovascular manifestations, whether or not their nature be allergic, are an evidence of hypersensitivity to acetyl salicylic acid, expressed in part by the cardiovascular system because of the preëxisting disease of that system.

The same authors report the case of a patient with essential hypertension, generalized arteriosclerosis, coronary vessel sclerosis with old cardiac infarct, and angina pectoris who suffered from an allergic state as evidenced by bronchial asthma, seasonal attacks of hay-fever, and positive reactions to ragweed, almond, flaxseed and house dust. During the ragweed season of one year his angina became very severe and was relieved by ephedrine, and later by installation of a pollen filter. There were no hay-fever or asthmatic manifestations. At the termination of the ragweed season and after the pollen filter was removed, the patient had only his former mild angina on effort. It seemed to the authors that the attacks of angina were allergic manifestations in the cardiovascular system and were possibly the equivalent of the usual nasal or pulmonary symptomatology.

Brow, G. R., and Holman, D. V.: Electrocardiographic study during a paroxysm of angina pectoris. Am. Heart J., 9:259, 1933.
Dietrich, S., and Schwiegk, H.: Das Schmerzproblem der Angina Pectoris. Klin. Wchnschr., 12:155, 1933.
Hamilton, R. L., and Robertson, H.: Electrocardiographic studies of the dying heart in angina pectoris. Canad. M. A. J., 29:122, 1933.
Rothschild, M. A., and Klein, M.: Production of the anginal syndrome by induced general anozemia. Am. Heart J., 8:729, 1933.
Shookhoff, C., and Lieberman, D. L.: Hypersensitiveness to acetyl salicylic acid expressed by an angina pectoris syndrome with and without urticaria. J. Allergy, 4:506, 1933.
Shookhoff, C., and Lieberman, D. L.: Angina pectoris syndrome activated by ragweed sensitivity in a patient with coronary vessel sclerosis. Case report. J. Allergy, 4:513, 1933.

Treatment of Angina Pectoris. *Evans* and *Hoyle* have reported a study of a series of ninety patients with angina pectoris of effort observed in the out-patient clinic of the London Hospital over a period of two and one-half years, with special reference to the comparative value of certain drugs used in continuous treatment "syphilitic angina pectoris was excluded, and coronary thrombosis was only considered as a complication. . . . The various drugs were administered over periods of two to four weeks at a time, or longer. . . . As a control in each case a placebo was regularly substituted for an active drug. The following drugs were tested: sodium nitrite, mannitol hexanitrate, erythrol tetranitrate, potassium iodide, luminal, chloral, morphine, papaverine, phenacetin, diuretin, euphyllin, belladonna, digitalis, lacarnol, and harmol. . . . With one exception, erythrol tetranitrate, the results show that a measure of improvement appears from every remedy tried, and at least as great an improvement during treatment with placebo. This universal efficacy can only be explained by natural variations in the severity of the symptoms, which give a spurious value to each remedy. If any drug had proved to be superior there might have been grounds for recommending it in the continuous treatment of the disease, but no such precedence could be made out. . . . We have been unable to convince ourselves that any drug tested is worthy even of trial in the routine treatment of the disease. . . . If, as we are convinced, none of these remedies is capable of lessening the frequency or severity of anginal attacks, there is all the greater need for a study of the application of those general measures known to control them. . . ."

Milliken presents a survey of the experimental development and clinical use of an insulin-free pancreatic extract in the treatment of forty-seven cases of angina pectoris. He reports thirty per cent better results using the tissue extract intramuscularly than when the usual drug therapy for angina is given alone. The substance has been shown to neutralize adrenalin and its mode of action therapeutically is thought to be coronary dilatation.

Smith gives an account of the successful treatment by insulin and dextrose of more than forty patients suffering from intractable angina pectoris. He gives reasons for believing that anginal pain is related to faulty carbohydrate metabolism in the heart. He believes that insulin acts immediately by its stimulating effect on glycogen metabolism in the heart, and progressively by promotion of the combustion of fat, this process leading to resolution of early atheromatous changes in the coronary arteries. In his application of dextrose-insulin therapy in angina pectoris, the patients continued taking any remedies that they had previously been taking. They continued in the same régime of work or rest during, as before, treatment. Records of frequency, severity and duration of attacks were kept for the periods prior to, during, and after treatment. The method consisted in giving five units of insulin before breakfast, and before the evening meal, each dose being followed by 30 Gm. of dextrose taken with the meal. This treatment was administered over periods varying from two to seventeen weeks.

Evans, W., and Hoyle, C.: The comparative value of drugs used in the continuous treatment of angina pectoris. Quart. J. Med., 2:311, 1933.
Milliken, G.: Pancreatic extract in treatment of angina pectoris. Texas State J. Med., 29:307, 1933.
Smith, K. S.: Insulin and glucose in treatment of heart disease with especial reference to angina pectoris. Brit. M. J., 1:995, 1933.

ARRHYTHMIAS

Paroxysmal Tachycardia. Bunn reports the case of an American white man, aged fifty-two at the time of thyroidectomy. A day and a half after operation he collapsed, with a pulse rate so fast it was uncountable. Morphine sulphate

was given; pressure on eyeballs was of no avail. Quinidine sulphate was given; later quinine intravenously was given (five hours after onset). Immediately the rhythm changed to auricular fibrillation with ventricular rate of about 150. Within forty-eight hours the rhythm was normal.

Bunn, W. H.: Ventricular tachycardia, rate of 300, following thyroidectomy. Am. Heart J., 8:714, 1933.

Auricular Fibrillation and Auricular Flutter. *Bedell* describes paroxysmal attacks of 1:1 response occurring during the course of auricular flutter in twenty-four cases. Three of these cases are reported for the first time, with electrocardiograms and tabulated analysis of the records obtained; the remaining twenty-one cases have been gathered from the literature. The twenty-four cases have been subdivided into three groups in which the mechanism seems somewhat different: (1) Two cases characterized by rapidly increasing auricular tachycardia in which 2:1 block appears shortly after a rate of from 240 to 273 is revealed; (2) Four cases resembling paroxysmal auricular tachycardia, but with heart rates ranging from 212 to 244. [There is no definite evidence that these are instances of auricular flutter]; (3) Eighteen cases, forming a unified group, from which the characteristics of 1:1 flutter were adduced. The author observed that a 1:1 flutter occurs most frequently in the fifth decade of life; it has not been observed above the age of fifty-seven, in contrast to other forms of auricular flutter, which may occur after the age of seventy. Digitalis effectively prevents 1:1 paroxysms by increasing the A-V block. During quinidine administration the patient should be kept in bed.

Bedell, C. C.: Auricular flutter with 1:1 response. Bull. Johns Hopkins Hosp., 52:226, 1933.

Quinidine Therapy. *Gold, Otto,* and *Satchwell* present the following conclusions on the use of quinidine in ambulatory patients for the prevention of paroxysms of auricular flutter and fibrillation, with especial reference to dosage and to effects on intraventricular conduction.

"In the way in which quinidine has been employed up to the present time, it has not proved so useful for the prevention of paroxysmal attacks of auricular flutter or fibrillation in the ambulatory patient as for the abolition of such attacks in the patient confined to bed. Some of the reasons for this are discussed.

"It is indicated that there is less danger in the use of quinidine in patients with paroxysmal auricular fibrillation and flutter to prevent attacks than to abolish the abnormal rhythm during a paroxysm.

"Although quinidine depresses intraventricular conduction (prolongs Q-R-S time) the presence of bundle branch block due to heart disease does not indicate necessarily any undue susceptibility to this action of quinidine.

"A fixed daily dose of quinidine produces its full effects very early, so that if it has not produced toxic effects in the first few days, it is unlikely that toxic effects from the direct action of this drug will result from its continued administration for long periods of time.

"Since quinidine is rapidly excreted and shows very slight accumulation, the matter of importance in dosage is the size of the daily dose rather than the total quantity given over a period of time.

"Evidence is presented in support of the view that the use of a small maintenance dose of quinidine to maintain the normal rhythm established with larger doses, exerts no appreciable influence on the persistence of normal rhythm in the ambulatory patient, and that in general more intense quinidine effects are necessary to overcome the influences that precipitate an attack of flutter or fibrillation in the ambulatory patient than to abolish an attack while the patient is at rest."

Gold, H.; Otto, H. L., and Satchwell, H.: The use of quinidine in ambulatory patients for the prevention of paroxysms of auricular flutter and fibrillation; with especial reference to dosage and the effects on intraventricular conduction. Am. Heart J., 9:219, 1933.

Heart Block: Auriculoventricular. *Cheer* and *T'ang* present electrocardiographic records of a patient with the Adams-Stokes type of epilepsy due to transient ventricular standstill in a heart with normal conduction and mechanism between attacks. The epileptiform attack was caused by complete heart block for thirteen seconds with ventricular silence for three and one-half seconds. There was a prolongation of the relative duration of the systole immediately after the ventricular stoppage. Immediately after the attack, conduction was normal; but subsequently the time was slightly prolonged. The patient made a rapid clinical recovery. The authors discuss the mechanisms involved. They believe that their patient's auriculoventricular conduction was impaired as the result of infection.

Lemann found ninety-nine cases of atrioventricular block in individuals below the age of thirty years reported in medical writings. Forty-two per cent were congenital and associated with a developmental deformity; diphtheria, rheumatism and influenza were important etiological factors.

Smith reports a case of complete heart block of thirty years' duration. It is presumed that the lesion responsible for the block was some acute inflammatory process which by cicatrization brought about the permanent interruption of the functions of the auriculoventricular bundle.

Cheer, S. N., and T'ang, T. K.: Transient complete heart block with Adams-Stokes attacks and normal auriculo-ventricular conduction between attacks. Chinese M. J., 46:1081, 1932.
Lemann, I. I.: Heart Block in the Young. Trans. Assoc. Am. Phys., 48:195, 1933.
Smith, H. L.: Complete heart block of thirty years' duration. Am. Heart J., 8:719, 1933.

Heart Block: Intraventricular. *Doumer* states that, in certain cases, tachycardia which is attributed to neurotonic influences is in reality of myocardial origin. He reports the case of a man, aged forty-seven, who had developed tachycardia following typhoid which had persisted practically unchanged for fifteen years with a pulse of 100 in decubitus and 120 upright and at rest. Clinically and roentgenologically there was no evidence whatever of myocardial damage, but the electrocardiogram gave evidence of an incomplete block of the right bundle branch. The author thinks that there can be no doubt that the tachycardia was of myocardial origin, especially since the extraordinary instability which characterizes essential tachycardia was lacking and the hypermotivity and anxiety reactions which accompany that form of tachycardia were also absent. However, the author thinks the mechanism producing the tachycardia in this case was not that by which myocardial lesions usually condition tachycardia; that is, the acceleration of the cardiac rhythm was not compensatory because the myocardial alteration was too limited to affect the energy of the myocardial contraction. He thinks that the tachycardia was due to a reflex stimulation of the rhythmic activity of the sinus node by the myocardial alterations, while leaving the sinus node susceptible to the ordinary physiologic stimuli, which explains the variations of the tachycardia.

Graybiel and *Sprague* have studied three hundred and ninety-five cases of bundle branch block in the cardiac laboratory and clinic of the Massachusetts General Hospital and have reached the following conclusions:

"The diagnosis of bundle branch block can only be made with certainty by the use of the electrocardiograph.

"From the standpoint of diagnosis and prognosis it is important to determine its presence in cardiac patients.

"Bundle branch block almost invariably indicates serious organic disease of the heart, usually coronary disease; the average duration of life of the 223 fatal cases in this series after the discovery of the conduction fault was one year and two months, but eighty-five other cases are still alive after an average of three years and eleven months following the discovery of the bundle branch block.

"Partial bundle branch block must be regarded clinically as equally significant with complete bundle branch block, the prognosis in both being essentially the same."

Wolferth, Margolies, and *Bellet* report that in three cases which had fulfilled all electrocardiographic criteria for the diagnosis of the common type of bundle branch block, serial sections of the bundle and its two divisions showed lesions destroying the continuity of the left with the right division practically intact; the time relations of various events related to contraction in the two ventricles showed a definite asynchronism due to delay on the left side.

Wolferth and *Wood* have noted 10 new cases of the unusual rhythm reported originally by Wolff, Parkinson, and White, and consisting of an abnormally short P-R interval and a widened Q-R-S complex, markedly aberrant in its initial portion. Many of these patients are subject to paroxysms of tachycardia and auricular fibrillation and show no cardiac damage. "The abnormal mechanism consists, not of a delay or block, but of an actual acceleration of the passage of the impulse from the auricle to a section of the ventricle. All the data so far obtained are in keeping with the possibility that an accessory pathway of A-V conduction (such as described by Kent, between right auricle and right ventricle) could be responsible for the phenomena manifested by these cases." This same conclusion was arrived at by Holzman, M., and Scherf, D., in 1932 (*Ztschr. f. klin. Med.*, 1932, 121:404).

Doumer, E.: Tachycardie d'apparence essentielle avec bloc incomplet de la branche droite du faisceau de His. Arch. d. mal. du Coeur, 25:742, 1932.
Graybiel, A., and Sprague, H. B.: Bundle branch block; analysis of three hundred and ninety-five cases. Am. J. M. Sc., 185:395, 1933.
Wolferth, C. C.; Margolies, A., and Bellet, S.: The side of the significant lesion in the common type of bundle-branch block. Tr. A. Am. Phys., 48:187, 1933.
Wolferth, C. C., and Wood, F. C.: The mechanism of production of short P-R intervals and prolonged Q-R-S complexes in patients with presumably undamaged hearts; hypothesis of an accessory pathway of auriculoventricular conduction (bundle of Kent). Am. Heart J., 8:297, 1933.

Heart Block: Sinoauricular. *Falkiewicz* describes electrocardiographic curves with a cyclic slow change in the auricular wave. It changes gradually from negative to positive and vice versa. The author cites animal experiments which seem to indicate that this is the result of a change of the auricular excitation center; that is, at times a different auricular center takes over the steering from the sinus node, after which the sinus node once more takes the lead. However, the constant length of the auricular periods and the slow changes in the outlines of the P wave contradict this. The interference of two auricular centers is another possibility, but this appears unlikely. Consequently the author assumes a continuous sinus rhythm and ascribes the change in the outline of the P wave to an abnormal spreading of the stimulus from the sinus node toward the auricles, a condition that ceases after several beats, when the P wave attains a normal outline. This explanation is corroborated by animal experiments carried out by Condarelli, which revealed a cyclic change in the P wave in dogs after phenol alcohol had been applied to the region of the sinus node. As the cause of the disturbance in the patient the author assumes short, transitory inflammatory or vascular changes that interrupt the normal connection between sinus node and auricle and thus lead to a changed conduction of the stimulus.

Observations on the disturbances of intra-auricular conduction are rare, owing to their infrequent occurrence and to the fact that sometimes they do not cause rhythmic disturbances and so escape observation. But they are of great importance in the estimation of the condition of the cardiac muscle, particularly if they coincide with disturbances of atrioventricular conduction.

Falkiewicz, A.: Beitrag zur Frage der intraurikulären Leitungsstörungen beim Menschen. Ein Fall von langsamer, cyclischer Formveränderung der P-Zacke im Ekg. beim Sinusrhythmus. Deutsches Arch. f. klin. Med., 175:273, 1933.

PROGNOSIS

Grant has reviewed the after histories of a group of 1,000 English Great War pensioners suffering from heart disease, 987 of whom were traced for ten years and seventy per cent of whom were thoroughly followed up. The cases were studied prognostically from two chief points of view: (1) valve lesion; (2) cardiac failure and cardiac enlargement. Autopsy reports were obtained for 142 of the cases (one-third of the deaths). The author concluded as follows: "Correlation of the after history with the factors used in the classification shows that after history is to be foretold not so much by the presence or absence of valve defect or by the type of defect, but much more closely by the degree of cardiac enlargement and by the grade of cardiac failure, as estimated first by exercise tolerance and secondly by the presence of venous congestion." Cases with little or no enlargement and good or fair exercise tolerance had a good prognosis, only about one-fifth dying within the period of ten years; cases with great enlargement or congestive failure rarely survived. "The average life in the presence of venous congestion is 2½ years." The chief factors modifying these prognostic indications were (a) subacute bacterial endocarditis (average life six months), and (b) auricular fibrillation.

Grant, R. T.: After histories for ten years of a thousand men suffering from heart disease; a study in prognosis. Heart, 6:275, 1933.

SPECIAL TREATMENT

Blumgart, Levine, and *Berlin* have given reasons for believing that patients with a normal metabolism who suffer from congestive heart failure or angina pectoris may show striking improvement if the metabolic rate be significantly lowered. The hearts of such people may be unable to supply enough blood for the ordinary demands of a normal metabolic rate but, nevertheless, may be able to supply enough blood for a reduced metabolic rate. The authors report the results of producing a subnormal metabolic rate by thyroidectomy on three patients who were suffering from severe congestive heart failure but who showed no evidences of disturbed thyroid function, and on one patient with angina pectoris with a slight elevation of metabolism but with a normal gland. In two of the three patients with severe congestive heart failure subtotal thyroidectomy caused a fall in the metabolic rate which reached its maximum about three weeks after operation. The basal metabolic rates in these two patients again rose toward the preoperative level, and their clinical conditions became less favorable. One of these patients continued for an additional month to show a somewhat lessened metabolic rate compared with that before operation, and his clinical condition, while not so good as the three weeks following operation, was definitely better than before operation. The patient suffering from angina pectoris had symptoms even while he was at rest. In one patient with heart failure, complete ablation of all thyroid tissue was done, the parathyroids being spared. This patient had maintained clinical improvement, and the metabolic rate had remained persistently lowered for more than six weeks. The procedure should be employed only in carefully selected cases in which all known therapeutic measures have proved ineffectual.

Berlin outlined the new method of total ablation of the normal thyroid gland for the treatment of chronic heart disease in patients without clinical or pathological evidence of thyroid toxicity. The anterior surface of the exposed portion of the gland is searched for atypically located parathyroids. A pyramidal lobe is always sought for and, if found, entirely removed. If the condition of the patient warrants, the gland is totally removed in continuity. A careful search of the *entire* gland is made for adherent or imbedded parathyroids, which, if found, are reimplanted in the sternomastoid muscle in accordance with the technique adopted by Lahey in the operation of partial thyroidectomy. To avoid insult to the laryngeal nerves by the accumulation of serum or the formation of a hematoma, drainage is instituted. Drains are made to pass through the sternomastoid muscle on each side. The skin is closed with Michel clips and a firm sterile gauze dressing is applied. The author emphasizes the necessity for total ablation of the gland in order to insure a persistently lowered metabolic rate.

Blumgart, Riseman, Davis, and *Berlin* have reported further work with complete thyroidectomy in the treatment of ten patients with congestive failure or angina pectoris. The results have been encouraging. They found that patients with active coronary disease, active infection, vascular accidents, repeated pulmonary infarctions, or rapidly progressive syphilitic cardiovascular disease were probably unfavorable subjects for the operation.

Levine, Cutler, and *Eppinger* have reported partial or complete removal of the normal thy-

roid gland in twelve patients suffering from the most severe forms of heart disease. There were four with angina pectoris, four with valvular heart disease and auricular fibrillation, and four with non-valvular congestive heart failure. They were all hopeless cardiac cripples and, for the most part, bedridden. Improvement in six was marked, in three slight to moderate, and in one there was no improvement. In another, sufficient time had not elapsed to judge. There was one operative death, in a patient who was moribund at the time of operation. The most promising group at that time seemed to be that of patients suffering from angina pectoris.

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MEDICAL HISTORY

Pioneer French Urologist—Leroy D'Étiolles

BY WM. PEARCE COUES, M.D.

D'Étiolles was one of the triad of great pioneer French urologists, the other two being Amusat and Civiale. The bitter controversy over priority among these three, concerning their urologic instruments has, according to history, been definitely settled, giving D'Étiolles credit for being the first, in 1822, to publish accounts of his instruments, which he had invented to facilitate bladder surgery.

Leroy D'Étiolles was born in Paris on April 5, 1798. Stuart* tells us that his early infancy was passed at the village of Étiolles near Corbeil, and when he was seven years of age he was sent to a boarding school kept by the celebrated Abbé Liautard. He was then sent to the Imperial Lyceum, and finished his classical studies there, gaining an expert knowledge of Latin.

He began his life work in the study of medicine at the École de Médicine at seventeen years of age. At this early age he submitted to the Academy of Surgery, for its examination, instruments which he had devised for destroying urinary calculi in the bladder by mechanical means. He improved many of the instruments made by older surgeons for bladder work, and invented a number of new ones and received a number of prizes for this work.

Stuart states that he was the first to introduce to Paris the instrument of Horteloupe. He made extensive studies of urinary calculi and their clinical treatment and had a powerful microscope for examining them. He also studied extensively the anatomy of the prostate gland.

According to Stuart, he was the first surgeon in France to operate with the "brise pierre articulé" of Jacobson, and made an improvement of importance in it so as to admit of its withdrawal in case one of the joints gave way in the bladder. He did not advocate the crushing operation for stone entirely to the exclusion of lithotomy, but rather advocated an attempt at first with the crushing instrument, and if this were unsuccessful, to have recourse to lithotomy, this depending on the size of the stone and the condition of the urethral canal.

In 1826 the French Academy gave him two thousand francs to encourage him in his studies. In 1829 he was made a Chevalier of the Legion of Honor and the Medal of July was also given him for his constant attention to the wounded on both sides at the period of the Revolution.

In 1829 he published an account "Recherches Experimentales sur l'Asphyxie." Stuart says that "the means proposed by him for restoring animation when suspended by asphyxia from submersion consisted of alternating pressure on the chest and galvanic current through the diaphragm".

We are also told concerning the instruments invented by D'Étiolles that "it would be useless to enumerate the instruments invented by him. The numbers are so great that their description alone would occupy the space of a volume." Most of D'Étiolles' writings were concerned with his studies of urology and his inventions of bladder instruments. Especially to be noted was his work "Sur l'engorgement de la prostate" and "considerations Anatomiques et Chirurgicals".

In 1840 he was occupied in collecting from all quarters of the world statistical information in regard to cancer, from which he hoped to be able to devise some important results and gain correct information in regard to the nature of this malady. Stuart says that before he left Paris, D'Étiolles had told him he had received reports of upwards of 20,000 cases. To those surgeons especially interested, at the present time, in problems of cancer, it would be most interesting to look back and see what D'Étiolles had gathered in his questionnaires nearly one hundred years ago.

*This article is based on facts in the account of Leroy D'Étiolles, in F. Campbell Stuart's "Eminent French Surgeons", published in America about 1840.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 20501

PRESENTATION OF CASE

First admission: A fifty-nine year old Italian repair man entered complaining of swelling of his legs and abdomen.

Ten days before entry the patient's right knee became swollen. It was not red or painful, and decreased somewhat after going in swimming a few days later. Two days later he noticed that his abdomen was getting larger and that he was quite tired. His abdomen continued to grow larger and he began to lose his appetite. Six days before entry he developed dysuria with burning severe enough to make him cry out with pain. The urine was dark colored and cloudy. He also had nocturia two to four times. Three days before entry his feet and ankles began to swell and he was forced to stop work. The swelling soon extended up his legs, spreading more rapidly on the right side. He had a slight dull pain in the spine and left hip, especially when he lay upon them. He had lost about twenty pounds in the last few weeks. There had been no jaundice or colicky pain of any kind.

The family history is non-contributory.

He had been married thirty-three years. His wife and five children were living and well. There were no miscarriages or stillbirths.

He had smallpox at the age of eight but no other serious illnesses or operations. He drank about a bottle of home-made wine every day for most of his life.

Physical examination showed a large elderly man in no acute distress. His face was slightly drawn and showed slightly pallid cyanosis and cold moist perspiration. The sclerae showed a slight icteric tint. The fundic vessels were slightly sclerotic. The teeth were dirty, and the tonsils moderately enlarged. The chest was slightly barrel-shaped and the lungs were clear. The heart was slightly enlarged but no murmurs were heard. The blood pressure was 160/80. The abdomen was distended and showed slight diastasis recti. There was shifting dullness in the flanks with a fluid wave. The veins of the lower abdomen were slightly prominent. The liver was enlarged to percussion but its edge could not be felt. There was moderate pitting edema of the lower halves of both legs. The prostate was slightly enlarged.

The temperature was 97.7°, the pulse 72. The respirations were 18.

Examination of the urine showed a specific gravity of 1.012-1.022, a very slight trace of albumin and a slightly positive test for bile. The sediment showed a few red blood cells and an occasional white blood cell. Examination of the blood showed a red cell count of 3,850,000, with a hemoglobin of 75 per cent. The white cell count was 4,900, 59 per cent polymorphonuclears. The stools were brown and showed a negative guaiac test. A Hinton test was negative. The non-protein nitrogen of the blood was 28 milligrams per 100 cubic centimeters. A liver function test showed 15 per cent retention; icteric index was 10 and van den Bergh 3.56 direct.

X-ray showed that the diaphragm was unusually high in position on both sides, particularly on the left. There was a band of dullness extending outward from the left border of the heart to the axillary line. The right diaphragm was irregular in outline. The transverse diameter of the heart was 17.2 centimeters, of the chest 31.5 centimeters. The patient refused to have a gastro-intestinal series. Examination of the urinary tract showed no abnormality. Bones of the spine and pelvis were negative.

On the third day an abdominal tap was done which yielded five quarts of clear, straw-colored fluid. The fluid showed a specific gravity of 1.008, with a total protein of 0.6 per cent and a cell count of 5,000 lymphocytes and 4,400 large mononuclear cells. A phenolsulphonephthalein test on the fifth day showed 70 per cent excretion, 25 per cent of which occurred in the first fifteen minutes. He continued to show a few red blood cells in the urinary sediment and, in spite of paracentesis, still showed considerable fluid. He was discharged on the seventh day to be followed in the Out-Patient Department and to receive further abdominal taps when necessary.

Second admission, one year later.

History of interval: After the previous discharge he came to the Emergency Ward at intervals of five to ten days for abdominal taps. These were uneventful and after a short rest he was able to get about a little, but still continued to have marked edema of his legs. Four days before entry he was seen in the Emergency Ward at which time ten liters of clear, light amber fluid was removed. It was noted that the patient was rather dull that evening and again the next morning when he was discharged. He had no complaints. When he reached home his family noticed nothing unusual. On the day before admission he complained of abdominal pain which he also had noted before, prior to abdominal taps. This was soon followed by hyperpnea and later by coma.

Vol. 211
1934

Physical examination showed a moribund, comatose, hyperpneic man without any marked cyanosis. He was cold, sweaty, and showed slight jaundice. There were occasional extrasystoles. The blood pressure was 100/60. His abdomen was distended with fluid and showed scars of previous taps. The liver was enlarged to percussion. There was marked edema of both lower extremities.

The temperature was 101°, the pulse 88. The respirations were 44.

Examination of the urine showed a slight trace of albumin and bile. There was no sugar or acetone bodies. The sediment showed an occasional white blood cell and hyaline cast. A white blood cell count was 5,900. A stool examination was negative. The non-protein nitrogen of the blood was 26 milligrams, blood sugar was 111 milligrams. The CO_2 combining power was 40.7 volumes per cent.

He was given 100 cubic centimeters of 50 per cent glucose intravenously, but showed no response. He developed tracheal râles and died two days after admission.

Differential Diagnosis

Dr. Chester M. Jones: There are a good many things about this case that I am perfectly sure I cannot explain.

The swelling of the knee may have been due to trauma or it may have been due to an acute infectious type of arthritis. I cannot adequately explain it. Two days later his abdomen began to swell. I do not see any correlation between those two facts. "Six days before entry he developed dysuria with burning severe enough to make him cry out with pain." That is another factor that is hard to correlate with the two preceding ones. Whether he had fever associated with an arthritis or cystitis and dysuria, or whether he had an acute pyelitis it seems to me impossible to tell at the present moment.

"He had slight dull pain in the spine and left hip." That may have been more evidence of some acute joint infection in the region of the left hip. It may have been simply that he was very uncomfortable from a full belly and marked edema. It is difficult to tell.

"He lost about twenty pounds in the last few weeks." That would indicate that he was losing a great deal of weight if he was developing ascites and edema at the same time. Incidentally, I think his loss of weight was presumably of longer duration than he realized.

"He drank about a bottle of home-made wine every day. . . . ." I presume that means an ordinary bottle, which means about a quart, and I do not think that gives us a very good clue to the situation. It is about what many Italians drink daily. It may have some significance.

"The abdomen was distended and showed slight diastasis recti." That was undoubtedly due to ascites. We have a man who has recent onset of ascites, edema of the extremities and jaundice with loss of weight and in addition some symptom referable to the joints about which we hear nothing later and also urinary symptoms about which we hear nothing later.

Examination of the urine shows that the kidneys concentrated well. The jaundice and ascites are undoubtedly not due to renal insufficiency. The positive bile test is confirmatory of the icterus. The white cell count does not interest me much, except that it rules out any important urinary tract infection. It would be very surprising if he had cystitis or pyelitis. The red cells may mean nothing, as we frequently get occasional ones in specimens from normal individuals, or they may mean some organic involvement of the urinary tract and one may have to consider them later. The liver function test shows a slightly abnormal retention of the dye.

So far we have evidence that there was no genito-urinary disease as such, except the possibility of malignancy involving one kidney. We could consider the possibility of hypernephroma. There is no evidence of heart failure as a basis of ascites and edema; no renal insufficiency and no nephrosis. We have evidence for liver damage and along with that a cause for ascites and edema, possibly lighted up by a recent infection in the nature of an acute infectious arthritis which may have been the match that touched off the fire.

"The diaphragm was high on both sides, particularly on the left." I suppose that was due to ascites, but I do not understand its being unilateral unless there was left-sided edema.

"There was a band of dullness extending outward from the left border of the heart to the axillary line." That I do not understand at all.

Dr. Tracy B. Mallory: Perhaps Dr. Holmes will demonstrate the x-rays.

X-ray Interpretation

Dr. George W. Holmes: The diaphragm is unusually high on both sides and the heart lies horizontally in the chest. There is some prominence of the left ventricle. The outline of the diaphragm on the left is not so distinct as on the right. I think this is the band of dullness referred to. Usually the diaphragm is higher on the right than the left. If the diaphragm on the left side is higher than the right it is usually due to gas in the stomach. This patient does not show evidence of gas anywhere. The abdomen is very dense. I think we have to consider the unusually high diaphragm on the left.

Dr. Jones: Is there any suggestion of fluid in the left chest?

Dr. Holmes: Nothing that would allow me to make a definite diagnosis of fluid certainly. This band above the diaphragm might be fluid but it does not look like it. I suppose it could

be a double picture of the diaphragm. It could be an old pleuritic lesion. That would also explain the high position of the diaphragm on that side. He has a moderate degree of arteriosclerosis and probably not much if any enlargement of the heart. The high position of the diaphragm would account for the increased transverse diameter.

This film of the urinary tract is a poor one. You can see the outline of the left kidney quite well and I think it is normal in shape, size and position. As far as we can make out from the dye in the pelvis, there is no distortion. On the right side the kidney does not show well. A second series of films of the urinary tract shows both kidneys. There is nothing definitely abnormal in their appearance.

Differential Diagnosis Continued

Dr. Jones: In the absence of any positive help from the films it seems to me that one must conclude that at least the diaphragm is high and that the heart is pushed into a horizontal position because of ascites. There still remains to be explained something unusual above the diaphragm.

That is not a very remarkable cell count or differential. It is not indicative of any acute process in the abdomen, rather a more chronic type of cellular reaction.

The phenolsulphonephthalein test is extremely good. It is further evidence that the kidneys are not at fault, so far as function is concerned, and possibly a little evidence that the liver is damaged. With cirrhosis there may be some increased excretion of the dye in the urine.

He was discharged to the Out-Patient Department. I take it that up to that point no diagnosis was made but it was thought he had cirrhosis of the liver, and most of the clinical evidence is in accord with that diagnosis. It is true that in the presence of cirrhosis if one has a superimposed infection one may get exacerbation of symptoms with ascites, edema and jaundice. It seems to me that that diagnosis would be a reasonable one. I am not happy about what they found in the right chest and I am not satisfied with the red cells in the urine. It is true that with a hypernephroma the liver can be pushed forward giving the appearance of hepatic enlargement. However, there is nothing, as yet, on which to base such a diagnosis. He lived for a year. That is important. If he had malignancy it might have produced this picture with generalized intra-abdominal involvement, but it is not likely that he could live for a year with such a condition. It is possible that he could live that long with hypernephroma because I have seen two cases that I thought were cirrhosis until the day before death.

The most common cause for ascites necessitating repeated abdominal taps is cirrhosis of the liver. Pick's disease will do it. I do not believe that cardiac cirrhosis will do it and I do not believe that his heart has anything to do with the picture. It is possible for a slowly growing malignancy to do it, but it seems unlikely.

I do not know how to explain the abdominal pain. One can get pain in cirrhosis of the liver, sometimes extremely severe, as severe as that of biliary colic. At autopsy one finds no explanation for the pain. I suppose one may suspect a thrombosis which may cause pain but there would be only one attack and here he had rather repeated attacks of pain. Why he had pain before the belly tap I cannot quite figure out. One does get adhesions from the abdominal wall to various organs after many belly taps, which may result in the equivalent of a Talma operation, but they are not painful. I think the fact that he has pain is just a little more evidence that he has cirrhosis of the liver.

The blood pressure is lower than it was before. He apparently is in more or less shock at the same time.

The respirations are very much elevated, due to fever, ascites and a high diaphragm.

The hyperpnea is probably due to the high diaphragm. It may be due to terminal acidosis. One can get that in so-called cholemia with marked lowering of the CO_2 tension, although it is not very common. He did not have diabetic coma.

The low white cell count throughout the story is consistent with rather than against the diagnosis of cirrhosis. The non-protein nitrogen is normal and against any renal insufficiency. The CO_2 is down and that fits in with the acidosis one gets occasionally in severe liver disease.

I should think that in spite of the curious onset of joint symptoms and dysuria one has a right to say that the logical diagnosis is cirrhosis of the liver. The pain I cannot explain but I have seen it frequently and it does not disturb me very much. He may have cancer; if so, I do not know where. If there is cancer involving the liver the commonest source is the gastro-intestinal tract and the pancreas. There is no evidence of involvement of either. He may have hypernephroma. I cannot see any evidence for this except an occasional red cell in the urine and the curious note that the left diaphragm is higher than it ought to be. If that is so, we still have right-sided hepatic enlargement to account for. There are certain things that I cannot explain, but I am going to stick to cirrhosis of the liver.

Clinical Discussion

Dr. Wyman Richardson: I saw this patient at his second admission when he was moribund

and I made a diagnosis of hepatic insufficiency. I did agree with Dr. Jones, however, that it was portal cirrhosis. He was an Italian. Of the last thirty-nine cases of portal cirrhosis in the hospital files, nineteen have been Italians. He had the curious odor to his breath, which we have spoken of before at these conferences, which means to me hepatic insufficiency.

CLINICAL DIAGNOSES

Cirrhosis of liver.
Arteriosclerotic heart disease.

DR. CHESTER M. JONES' DIAGNOSIS

Cirrhosis of the liver.

ANATOMIC DIAGNOSES

Cirrhosis of the liver, atrophic, type undetermined.
Hemachromatosis, early.
Primary carcinoma of the liver.
Esophageal varices.
Cholelithiasis.
Icterus.
Pulmonary edema.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The diagnosis of this case was fairly evident so far as the cirrhosis went, but I think there would be no possibility of going any farther. There was cancer, however, and it was in the liver. It seems to me that primary carcinoma of the liver is getting to be a very common event in our cirrhosis cases. This is the fifth case we have had within twelve months. The cause of the cirrhosis was not obvious. As Dr. Richardson has pointed out, we have had a number of cases of cirrhosis of the liver in Italians with a history of wine-drinking. On the other hand in none of these have we ever been able to find the fatty vacuolization and hyalinization that is diagnostic of the alcoholic cirrhosis that follows the drinking of distilled liquors. This man's cirrhosis was very old, evidently of long standing. The liver cells contained a great deal of hemosiderin and that raised the question of hemachromatosis. There is no doubt that he had a mild degree of hemachromatosis at the time of death but the iron deposits were only in the liver cells and not in the stroma as well, where the major deposits are found in cirrhosis due to hemachromatosis. I think that we have to consider a double etiology, one causing the old cirrhosis, and one responsible for the beginning hemachromatosis. Then finally a primary carcinoma of the liver developed to take him off.

A PHYSICIAN: Why was the diaphragm higher on the left than on the right?

DR. MALLORY: The spleen weighed 500 grams. That is the only thing found that would explain it. At the time of autopsy both diaphragms were high. Of course the pulmonary collapse may have been present longer on the left than the right.

A PHYSICIAN: Can you explain the joints and the dysuria?

DR. MALLORY: The urinary tract was absolutely negative. The joints were not investigated.

DR. ALFRED KRANES: Was the cancer a small one?

DR. MALLORY: Yes.

DR. KRANES: What evidence have you for saying that it caused his death?

DR. MALLORY: Simply that it had replaced perhaps a quarter or a fifth of the liver tissue. It may in that way have contributed to the hepatic insufficiency.

DR. JONES: Was the liver large?

DR. MALLORY: No it was small.

DR. JONES: So that the "large" liver that they felt was simply a rather normal-sized organ pushed up by a marked accumulation of fluid in the abdomen.

CASE 20502

PRESENTATION OF CASE

A seventeen year old American girl was admitted to the Emergency Ward complaining of headache.

Approximately one week before entry the patient noticed a little sniffling. During that night she developed a very severe frontal headache which continued until admission. During the past week she had a temperature ranging from 101.5° to 102.5°. On the morning of admission she had a chilly sensation but apparently not a definite chill. She vomited once. She had been treated by her physician with pills. When examined by her physician she denied the presence of pain in the back of her neck, but a little while later complained of pain there. Her family noted stiffness of her neck about ten o'clock on the morning of admission. She was brought into the Emergency Ward about three p.m. There had been no previous history of earache, cough, rhinitis, or night sweats.

She had swollen glands at the age of ten. There were no operations.

Her mother had died of tuberculosis when the patient was three years old.

Physical examination showed a blond, slender, well-oriented girl lying on her back complaining of severe frontal headache. The eyes moved well in all directions. There was no nystagmus or ptosis. The neck was stiff. There was pressure tenderness over the supra-orbital and maxillary areas. The reflexes were hyperactive and equal. Plantar reflexes were normal. There was

Vol. 211
1934

a positive Kernig sign. There was no sensory impairment.

The temperature was 105°, the pulse 80. The respirations were 27.

Laboratory examination of the blood showed a white cell count of 10,000.

About an hour and a half after admission to the Emergency Ward she developed edema of the right orbit without any impairment of ocular movements. She also became markedly confused and disoriented. A lumbar puncture done at this time showed an initial pressure of 800 millimeters which increased about 100 millimeters upon jugular compression. Twenty centimeters of cloudy fluid was removed which contained 5,000 cells of which 90 per cent were polymorphonuclears, the other 10 per cent being lymphocytes. The total protein was 234 milligrams, the sugar 44.5 milligrams, and the chloride 649 milligrams. X-rays of her sinuses, skull and chest showed no pathologic changes.

When seen in the Eye and Ear Infirmary the right eye showed marked exophthalmos, with much tenderness of the entire orbit. Both lids were swollen with chemosis of the conjunctiva. The cornea was clear. The pupils reacted to light. Because of the swelling, the media and disc could not be seen. There was very slight movement laterally. The left eye was negative. She was immediately taken to the operating room.

Following operation her temperature rose to 107°. The left eye began to swell and the disc became edematous. She developed Cheyne-Stokes respirations and died the day following operation.

Differential Diagnosis

Dr. James B. Ayer: It seems to me that there is a discrepancy between the last line of the present illness and the first line. She had sniffling, and then it says "No history of rhinitis or night sweats." She certainly seemed to have had something of an infectious nature in the upper air passages. From the history as given I do not see how, until the family noticed stiffness of the neck, one could say she had anything more than a common cold. I do not see anything to suggest disturbance of the nervous system. The stiffness of the neck, if it is true, should of course make one suspicious of something intracranial and that I suppose is the reason she came in.

The family and past histories appear not to be of significance.

The physical examination would certainly indicate a meningeal irritation. Whether it is bacterial meningitis, or aseptic meningitis, or a meningismus, I do not think we can say on the evidence. All we can say is that there is an increase of symptoms which indicates that the nervous system is affected, with evidence of probable increased intracranial pressure and meningeal symptoms.

The white cell count is abnormal but is not so high as one would expect in meningitis.

"She also became markedly confused and disoriented." We now have cerebral symptoms with a meningeal picture, but we cannot say yet what that means. Confusion and disorientation might be a manifestation simply of high fever but one thinks more that it is part of the meningeal picture. The disturbance of the right orbit, certainly the edema, suggests interference with the venous return in the ophthalmic vein.

The initial spinal fluid pressure of 800 millimeters is a great deal higher than we should expect in aseptic meningitis and more than in meningismus. It is typical of a frank bacterial meningitis. The rise on jugular compression should have been stated for right and left side separately, because we may have in this case thrombosis of one lateral sinus. Evidently there is no block in the spinal subarachnoid space. Nothing is said about an organism, but it is a fluid that almost surely indicates bacterial meningitis. It is very seldom that we get as many cells with an aseptic process; so I should favor on the cells alone a true meningitis whether the organisms were isolated or not. This is further substantiated by the fact that the sugar was 44.5 milligrams, which is below the low normal level and goes with bacterial meningitis and not the other forms.

It is interesting that the x-rays do not show any pathologic changes. It seems to me that we see very frequently normal sinus pictures in patients who have sinus infection of short duration.

The picture has now changed from edema of the right orbit to exophthalmos, with much tenderness of the entire orbit. Both lids are swollen with chemosis of the conjunctiva. This suggests retrobulbar abscess or venous obstruction of the ophthalmic division as the cause, the latter favored.

"There was very slight movement laterally." I suppose that means either lateral plane. It does not mention upwards and downwards. If I am correct in my surmise that there is a disturbance of flow of venous circulation and a subsequent thrombosis of the cavernous sinus, which is very possible and not infrequently seen, there should be more disturbance of ocular motor function. There may have been, it is not stated. The pupil should also be dilated; but it does not say.

I can only surmise that they took her to the operating room to operate on her local condition. The operation may have been on the sinuses or may have been on the base of the

brain with the idea of finding a focal collection of pus.

It seems to me that the last paragraph makes the diagnosis of cavernous sinus thrombosis almost certain. One can imagine by some chance having an abscess in the right orbit giving exophthalmos and disturbance of mobility of the eyeball, but when on the next day the process jumps to the left orbit, abscess becomes unlikely. On the contrary, it is absolutely characteristic of a cavernous sinus thrombosis to involve one side and by the circular sinus to go to the other side and give the picture of chemosis, exophthalmos and paralysis of the eyeball. I should therefore feel that a diagnosis of meningitis, purulent and bacterial in origin, was indicated. I should feel that the conclusion of the case was associated with cavernous sinus thrombosis, beginning on the right and extending to the left side. I do not know what organism is involved but one would expect primarily pneumococcus or streptococcus.

DR. MALLORY: Organisms were searched for and not found. No cultures were made.

DR. AYER: They often are not found. I still think organisms should have been there because it is not like aseptic meningitis. The onset of infection was probably a sinus infection, frontal, sphenoidal or ethmoidal, if I am right in my other reasoning, probably associated with this first symptom of sniffling. I should suppose that the sinus thrombosis was primary and the meningitis secondary, but the reverse may have been true. I might say that I have not seen this case and know nothing about it, but the reasoning would seem as indicated.

DR. MALLORY: The pathology was primarily of the central nervous system. Dr. Kubik will tell us about it.

CLINICAL DIAGNOSES

Sphenoidal abscess.
Meningitis.
Cavernous sinus thrombosis.

DR. JAMES B. AYER'S DIAGNOSES

Meningitis, bacterial, probably from sinusitis.
Cavernous sinus thrombosis.

(Cannot say which preceded.)

ANATOMIC DIAGNOSES

Thrombophlebitis, acute suppurative, of the cavernous sinuses.
Meningitis, acute.
Sphenoidal sinusitis.
Operation: drainage of frontal and sphenoidal sinuses and ethmoid cells.
Multiple septic pulmonary infarcts.
Septicemia, staphylococcus aureus.

PATHOLOGIC DISCUSSION

DR. CHARLES S. KUBIK: Autopsy disclosed purulent meningitis, involving chiefly the base of the brain, and thrombophlebitis of the inferior cerebral veins which empty into the cavernous sinuses.

The cavernous sinuses were removed with the body of the sphenoid bone and neighboring structures for microscopic examination.

In the sections there are seen acute suppuration in the sphenoidal sinus and bilateral cavernous sinus thrombophlebitis. There are foci of suppuration in the bone lateral to the sphenoidal sinus. The wall of the right carotid artery is necrotic and infiltrated with polymorphonuclear leucocytes while the lumen of the vessel is filled with a septic thrombus.

We have, therefore, cavernous sinus thrombophlebitis and meningitis resulting from an infected sphenoidal sinus. How does the infection reach the cavernous sinuses and meninges? Turner and Reynolds of Edinburgh have shown that in many cases of cavernous sinus thrombosis the infection spreads along venous channels, as a thrombophlebitis, and so reaches the cavernous sinus. In the case of sphenoidal sinus infection the process involves tiny veins which pierce the bone and empty into the cavernous sinuses. With infections about the nose and upper part of the face the infection may extend in a similar fashion along venous channels which are connected less directly with the cavernous sinuses.

In the case before us we have, similar to the findings described by Turner and Reynolds, infection in the bone separating the sphenoid cavity from the cavernous sinus.

The case brings up other points of some interest. When the patient was admitted there were unmistakable signs of meningitis but nothing to indicate cavernous sinus thrombosis. Protrusion of the right eye and swelling of the eyelids appeared shortly afterwards, developing very rapidly, whereas in early stages at any rate, it was noted that vision and ocular movements were not affected.

The orbital contents were not examined in this case. One regularly finds, however, thrombophlebitis of the ophthalmic veins and usually suppuration in the orbital tissues. In the beginning the ocular signs are unquestionably due simply to an obstruction of the venous blood flow. Later they are probably intensified because of suppuration and the formation of multiple small abscesses. Before death occurs the process usually spreads across to the other side through the circular sinus which connects the two cavernous sinuses.

What is the relation between the infection in the cavernous sinuses and the meninges? We often see meningitis following sphenoidal sinus

infection, apparently without infection of the cavernous sinuses, as well as cases of cavernous sinus thrombosis (usually from foci other than the sphenoidal sinus) without meningitis. It is possible that in this case the two conditions occurred independently of each other. The other two possibilities are (1) meningitis secondary to cavernous sinus infection and (2) infection of the cavernous sinuses secondary to meningitis.

The fact that meningitis made itself manifest clinically before cavernous sinus thrombosis does not necessarily mean that the meningitis came first, since the signs by which we recognize cavernous sinus thrombosis probably do not appear until the process has extended to the ophthalmic veins.

There is a connecting link between the pia-arachnoid and the cavernous sinus through the inferior cerebral veins, which were thrombosed in this case, and I am inclined to favor the view that in most cases of this kind the meningitis is secondary to the infection in the cavernous sinus.

DR. MALLORY: These cases ordinarily show very little pathology in the body except for pulmonary complications in the form of multiple septic infarcts. In this case there were two massive infarcts and a great many minute ones. Postmortem cultures showed the offending organism to be a staphylococcus aureus.

A PHYSICIAN: What was the operation?

DR. MALLORY: An attempt to drain the cavernous sinus, I believe. Will you tell us about the operation, Dr. Schall?

DR. LEROY A. SCHALL: At operation we were confronted with the problem of whether this was an orbital cellulitis or a cavernous sinus thrombosis. With the history of the sniffles, with the finding of pus in the nose, although the x-rays were negative, we decided to explore, realizing that it might be a hopeless operation. We did an external fronto-ethmoidal operation with an incision starting at the brow, curving down the side of the nose, retracting the periosteum, then going through the ethmoidal region, removing the ethmoids, removing the floor of the frontal and going back to the sphenoidal sinus. The mucous membrane of the frontal was markedly edematous, likewise the mucous membrane of the ethmoids. The ethmoidal cells were softened but there was no pus. It was not until we opened the sphenoid that we found pus under pressure.

A PHYSICIAN: Was there any history of headache before the patient became terribly ill?

DR. SCHALL: This history said that she complained of headache but it was not the usual headache of sphenoidal infection. We expect pain over the vertex in this disease, which she did not complain of.

I might say that the operation for cavernous sinus thrombosis as outlined by Dr. Mosher is enucleation of the eye and enlarging the sphenoidal fissure and reaching the cavernous sinus in that fashion.

A PHYSICIAN: I should like to ask Dr. Ayer whether a frontal headache is unusual in meningitis, in other words whether it might not have been from the sinus rather than a meningitis?

DR. AYER: I should say that usually the headache with meningitis is more generalized. The rigidity of the neck is more important than the type of headache in this case.

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Vol. 211
1934

A REGISTRY OF BRAIN TUMORS

PRELIMINARY announcement has been made in the *New England Journal of Medicine*, November 22, 1934, of a registry of brain tumors which is being set up at the Yale School of Medicine, New Haven, Connecticut, under the curatorship of several prominent American neurosurgeons. The material already at hand, now over 2,000 gross and microscopic specimens removed at operation or autopsy over a period of many years, is from the former clinic of Dr. Harvey Cushing. It has formed the basis of a number of monographs, particularly that by Percival Bailey and Harvey Cushing, "A Classification of the Tumors of the Glioma Group", Philadelphia, 1926 and Jena, 1930. Many illustrations, moreover, from the same collection appear in Cushing and Bailey's "Tumors Arising from the Blood-Vessels of the Brain", Baltimore, 1928, and Cushing's "Tumors of the Nervus Acusticus", Philadelphia, 1917 and Paris, 1924.

That this superb collection of neuropathological tissue should be further studied and made the basis for comparison with other tumor specimens, is a matter of the greatest importance. By far the largest and most complete brain tumor museum in the world, it will be adequately classified and carefully supervised by Dr. Louise Eisenhardt, long an associate of Dr. Cushing and thoroughly familiar with the specimens. Dr. Eisenhardt, moreover, is eminently qualified for the position of resident-curator, having made a number of important contributions to the histology of brain tumors as the result of her work on supra-vital staining. It is to be regretted, nevertheless, that the specimens are not in close contact with the case records, most of which are at the Peter Bent Brigham Hospital in Boston. It is hoped, however, that abstracts of the records will be made and that a close coöperation of the registry at the Yale School of Medicine and the Hospital in Boston will always be maintained.

Now that the registry has been set up, it is most important that it should be used. All neurosurgeons, both in America and abroad, should send sections of tumors to the registry for comparison with the Cushing material. This will not only add to our knowledge of brain tumors but will be of practical value to the neurosurgeons themselves. Rare tumors may be identified and various types of the more common forms more adequately classified. This registry, established through the generosity of Dr. Cushing, should receive world-wide support.

OBSTETRICS IN THE COLONIAL DAYS OF AMERICA

IN a recent series of lectures at the Lowell Institute, Dr. Cecil K. Drinker, of the Harvard School of Public Health, has presented an extremely interesting and valuable study of "Health, Medicine and Doctors in Colonial Days." The material for this study was derived from the fortunately preserved diary of Elizabeth Drinker, an ancestress of the author. Born in 1758 and living until 1807, she saw the half century during which the American States passed from their colonial days into the postrevolutionary period of the early nineteenth century,—the time when Hunter and Jenner were so notably advancing the progress of medicine in England, and when the foundations of medical education were being laid in America,—the transitional period from relatively primitive into relatively modern conditions.

Of the various subjects into which Dr. Drinker divided his material, particular interest attaches to that of the sixth lecture on "Child-Bearing in 1790." From the pages of Elizabeth Drinker's diary it is possible to trace the obstetric and pediatric history of seven well-to-do Philadelphia Quaker families of the period. To these families there were born, dur-

ing this half century, forty-eight children, of whom thirty-three survived the tenth year, a remarkably high average for the time, which Dr. Drinker rightly regarded as due chiefly to the good circumstances under which these people were fortunately able to live, and to their own intelligence. Unlike many others of their day, these families for the most part employed the best male obstetricians available, instead of the midwives by whom the majority of patients were delivered. Among these early obstetricians particular mention was made of the two Doctors William Shippen, senior and junior. The latter spent five years of medical study in England and on the continent of Europe under such teachers as John and William Hunter, and the celebrated McKenzie. On his return to Philadelphia in 1762, he offered a course of lectures on Anatomy and Midwifery, the first public teaching of the latter subject in this country. It was as a development from these lectures that there was founded in 1765 the Medical School of the College of Philadelphia in which Dr. Shippen became the first Professor of Anatomy and Surgery.

Those who survived childbirth, both mothers and children, in all early times owed their good fortune, of course, primarily to normality of inheritance, to vigorous physical constitution, and to the salutary processes of nature which, in the main, do all things well, howbeit by the method of trial and error.

"So careful of the type she seems,
So careless of the single life."

Those who are unable to meet environmental circumstances may perish; but those who by virtue of fortunate adaptation survive are enabled to benefit posterity by the transmission of their advantageous chromosomes. It is always an interesting speculative question as to how far modern, scientific methods may by their ingenuity override the methods of nature and thereby thwart her selective purposes. These are, of course, respects which must not give us pause. It is highly probable that nature herself, smiling at our pretentions, may turn our methods to her own advantage and remain, as always hitherto, triumphant in the end. Ground that we apparently gain by our skill in one direction may well be lost by our negligence, shortsightedness, or folly in another. Child-bearing and child-rearing in the days of Elizabeth Drinker may have had more casualties than occur to-day; but it is at least open to academic question whether the end-results of her time were notably inferior to those of our own.

A PUBLIC ANXIETY

THE announcement of the disappearance of Dr. George H. Bigelow caused grave concern in the medical profession and profound sympathy for his relatives and associates.

In recognition of his service to humanity the people at large are also anxious to a great degree.

That one of such unusual ability and prominence in human affairs as Dr. Bigelow, should have suffered mental and physical distress is especially disconcerting, and we all cling to the resource of the elder Dr. Bigelow in his belief that his son will eventually be restored to his family.

There yet remains the possibility of effective action which may bring him back to his friends in a more general search among hospitals, hotels and all possible retreats of an amnesia victim. If in addition to these institutions the police department, the Red Cross and individual doctors will spread the news that this beloved physician may be secluded or wandering about somewhere in this country unable to direct his footsteps homeward, there still remains hope of his recovery while yet his mind may be restored. Years have elapsed in cases of amnesia before the victim of the disease has been recovered.

We express, to his family and associates in this suspense, the deepest sympathy of the medical profession which has been consistently honored by Dr. George H. Bigelow.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

HEATH, CLARK W. A.B., M.D. Harvard University Medical School 1926. Instructor in Medicine, Harvard Medical School. Assistant in Medicine, Boston City Hospital. Assistant Physician, Thorndike Memorial Laboratory, Boston City Hospital. Address: Thorndike Memorial Laboratory, Boston City Hospital, Boston, Massachusetts. Associated with him is

KING, ELIZABETH F. B.S., Simmons College 1931. Blood Technician, Thorndike Memorial Laboratory, Boston City Hospital. Address: Thorndike Memorial Laboratory, Boston City Hospital, Boston, Massachusetts. Their subject is "The Takata-Ara Test in the Diagnosis of Liver Disease." Page 1077.

RUSHMORE, STEPHEN. A.B., M.D. Johns Hopkins University School of Medicine 1902. F.A.C.S. Secretary, Massachusetts State Board of Registration in Medicine. His subject is "The Care of the Patient as the Religion of the Physician." Page 1081. Address: 520 Commonwealth Avenue, Boston, Massachusetts.

LEWIS, DEAN. B.A., D.Sc., LL.D., D.S.M., M.D. Rush Medical College 1899. F.A.C.S. Professor of Surgery, Johns Hopkins Medical School. Surgeon-in-Chief, Johns Hopkins Hospital. His subject is "Tumors of the Breast." Page 1088. Address: Johns Hopkins Hospital, Baltimore, Maryland.

FRIBORG, JOSEPH N. M.D. Tufts College Medical School 1919. Member of the Surgical Staff of the Elliott Hospital, Manchester, New Hampshire. His subject is "Friedman's Modification of the Aschheim-Zondek Test." Page 1089. Address: 913 Elm Street, Manchester, New Hampshire.

WHITE, PAUL D. M.D., AND SPRAGUE, HOWARD B., M.D. See page 1033, issue of November 29, for records of authors. Their subject is "Cardiovascular Review for 1933." (Concluded.) Page 1095.

MISCELLANY

RESERVE ROOMS EARLY

All who are thinking about attending the annual meeting of the National Tuberculosis Association to be held in Saranac Lake, June 24-27, 1935, should give early consideration to hotel reservations.

Saranac Lake Village itself, with its 8,000 population, can accommodate only half of the thousand persons who are expected to attend the meeting, including a number who will be house guests of friends in the village. In view of this fact, the local committee has made arrangements to house delegates in hotels outside of the village, and for this purpose has selected hotels in Lake Placid and the Saranac Inn on Upper Saranac Lake.

In the Village of Saranac Lake proper, the Saranac Hotel is the only modern hotel but its accommodations are relatively limited. Within the near future information will be available regarding lower-priced accommodations in and around the village.

A new concrete highway is just being completed between Saranac Lake and Lake Placid and will enable delegates to motor comfortably from Lake Placid to Saranac Lake in fifteen to twenty minutes. The distance is only eight and a half miles.

Of the hotels listed in Lake Placid, Hotel Marcy and Hotel Belmont are both in the village itself. Lake Placid Club on Mirror Lake is on the outskirts of the village. Whiteface Inn on Lake Placid is about a mile from the village but in the general direction of Saranac Lake.

Saranac Inn, one of the famous hosteiries in the Adirondacks, located on Upper Saranac Lake, is reached by motor over a good road and is thirty to forty minutes from Saranac Lake.

It should be noted that the rates given for hotels outside of Saranac Lake include breakfast and the evening meal. Noonday meals may be secured in Saranac Lake. Transportation for outlying hotels will be provided by the local committee to and from Saranac Lake and the rate will be sufficiently low so that it will not exceed 50 cents a day. Delegates with private cars available will be asked to register this fact with the local committee on arrangements. Ample parking space will be provided.

The meetings themselves will be held in the Town Hall Auditorium, accommodating about 1,200 persons, and in the High School, a modern building with excellent accommodations for section groups, exhibits, etc.

The program for the meeting will be announced in full in the March *Bulletin*.

For further information about Saranac Lake or hotels and other living accommodations than those mentioned here, please write Mr. Ernest H. Wood, Saranac Lake Society for the Control of Tuberculosis, 64 Main Street, Saranac Lake, N. Y.—*Bulletin of the National Tuberculosis Association*, December, 1934.

THE RESIGNATION OF DEAN EDSALL

David Linn Edsall will retire as Dean of the Faculty of Medicine and Dentistry, Dean of the Medical School and Dean of the School of Public Health of Harvard University on September 1, 1935, to become Dean Emeritus, it was announced December 6. He is sixty-five years old, and has been Dean of the Medical School since 1918. His resignation from active duty was accepted at the last meeting of the President and Fellows.

Dean Edsall graduated from Princeton University in 1890. He received his M.D. from the University of Pennsylvania in 1893 and honorary Sc.D. from Princeton in 1913. In 1928 he was awarded an honorary S.D. by Harvard University, which was conferred by President Lowell in the following words: "Dean of our Medical School; in the progress of medical education in America, the leader."

Dean Edsall was Professor of Therapeutics and Pharmacology at the University of Pennsylvania from 1907 to 1910, and Professor of Medicine there from 1910 to 1911. He was Professor of Preventive Medicine at Washington University in Missouri in 1911-1912. In 1912 he came to Harvard as Jackson Professor of Clinical Medicine. He has been Dean of the Harvard Medical School and of the Faculty of Medicine since 1918, and Dean of the School of Public Health since 1922 and of the Faculty of Dentistry since 1924.

He is a Fellow of the American Academy of Arts and Sciences, a member of the Association of American Physicians, and a member of the American Philosophical Society. He has contributed many articles to medical journals.

FATALITIES CREDITED TO AUTOMOBILES

According to studies made by the Travelers Insurance Company, and reported in the *New York Times*, the sixteen per cent increase in fatalities due to the operation of automobiles in the first ten months of 1934 as compared with the figures of 1933 indicate the probability that deaths due to this agency may

reach thirty-six thousand in the present year. This number is the peak up to the time of this study.

The report goes on to show that forty-eight per cent of persons killed in street and highway accidents were pedestrians, an increase of more than three per cent over this figure for 1933. Collisions of automobiles with street cars, fixed objects and bicycles also caused more deaths than in the preceding year. Studies of deaths of automobile drivers show that intoxication served to account for an increase of twenty-four per cent over those of 1933, and of pedestrians involved in automobile accident records show an increase of fifty-five per cent who were declared to be intoxicated.

CORRESPONDENCE

SYPHILIS INFORMATION BY RADIO

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

December 4, 1934.

Editor, *New England Journal of Medicine,*

We have read with considerable interest and approval your editorial commenting upon the refusal of the Columbia Broadcasting System to permit Dr. Thomas Parran, Jr., to mention syphilis in his talk on public health needs.

Dr. Chadwick has written both the Columbia and National Broadcasting Systems to express this Department's regret that those two large channels of public information should be closed to this important public health problem. It is no more than fair to say, however, that this Department has been singularly fortunate in that during the past four years it has been permitted to broadcast on seven different occasions on the subject of the control of gonorrhea and syphilis. Our first broadcast was made over WBZ late in 1930. Shortly thereafter the NBC System gained control of WBZ, since when that station has been closed to any discussion of this particular subject.

However, the Edison Electric Company station, WEEI, has remained sufficiently independent of the various national systems that it has been able to decide for itself what it would broadcast. The Department has presented six talks over that station and there are two more scheduled for the near future. It is interesting to note that not in a single instance has there been a complaint made against any of the broadcasts in spite of the fact that they were exceedingly frank and in no instance avoided the use of technical terminology.

Apparently New England is not the stubbornly prudish place that it is sometimes said to be, at least when it is permitted to think and act for itself.

Yours truly,
N. A. Nelson, M.D., *Assistant Director,*
Division of Communicable Diseases.

SPLITTING FEES WITH DEALERS

Pomeroy Company, Inc.
Surgical Appliances
16 East 42d Street, New York

September 18, 1934.

Dr. Walter L. Burrage, Secretary,
Massachusetts Medical Society.

Dear Dr. Burrage:

At a hearing in Washington on the Code of Fair Competition for the Surgical Distributors' Trade, representatives of the American Medical Association and the American College of Surgeons strongly urged an amendment to the code specifically prohibiting the giving of commissions to physicians for recommending dealers to their patients.

This resulted in the Government inserting such a clause in the Surgical Distributors' Code, which went into effect September 3, making it against the law to give such commissions.

When requesting that this provision be included in the Code, it was mentioned that all medical associations would assist surgical dealers to enforce this law.

Many physicians felt it right to expect a fee from the dealers for this service and for the medical associations to claim it unethical had very little effect.

Why not show that it does not pay? The commissions amount to very little and only create comment and comparison among the laity. Patients are better pleased when charged a direct fee for the advice given and then know that the amount paid to the dealer is for value received.

Yours very truly,
Pomeroy Company, Inc.,
Arthur C. Pomeroy,
President and Treasurer.

Excerpt from Code of Fair Competition for the Surgical Distributors' Trade as Approved August 24, 1934

"Article VIII—Trade Practices

"Section 1. No member of the trade shall give, permit to be given, or offer to give, anything of value for the purpose of influencing or rewarding the action of any employees, agent or representative of another in relation to the business of the employer of such employee, the principal of such agent, or the represented party, without the knowledge of such employer, principal or party. Commercial bribery provisions shall not be construed to prohibit free and general distribution of articles commonly used for advertising except so far as such articles are actually used for commercial bribery as hereinabove defined.

"(a) For the purposes of this Section, physicians, surgeons, and other professional men and women shall be considered agents or representatives of their

patients and/or clients when they offer or recommend the purchase of products of this trade."

September 20, 1934.

Mr. Arthur C. Pomeroy, President and Treasurer,
Pomeroy Company, Inc.

Dear Mr. Pomeroy:

Thank you for your letter of September 18, inclosing Excerpts from the Code of Fair Competition for the Surgical Distributors' Trade, as approved, August 24, 1934.

The paying of a fee by the dealer in surgical appliances to the physician who had sent a patient for some sort of appliance would be considered here as a form of "Fee Splitting," which is distinctly unethical. Should any of the 4,920 Fellows of the Massachusetts Medical Society be charged with accepting such a fee he would be queried by our Standing Committee on Ethics and Discipline at once. I judge from your letter that you do not favor the practice although your language is not clear. I read your letter twice yesterday and then slept on it and read it again this morning. Here is the last paragraph: "Why not show that it does not pay? The Commissions amount to very little and only create comment and comparison among the laity. Patients are better pleased when charged a direct fee for the advice given and then know that the amount paid to the dealer is for value received."

If it is a fair question how is it to be shown that it does not pay? The commissions create comment among the laity. What do they know about commissions? How are patients better pleased when charged a direct fee? What other fees are charged them? These comments from one who knows nothing about the practices of dealers in surgical appliances.

Very truly yours,

WALTER L. BURRAGE, M.D., *Secretary.*

Pomeroy Company, Inc.
Surgical Appliances
16 East 42d Street, New York

September 21, 1934.

Dr. Walter L. Burrage, Secretary,
Massachusetts Medical Society.

Dear Dr. Burrage:

It is evident from your letter of September 20 that you are looking at this commission matter from what I would consider a different viewpoint. Did you know that many physicians have been paid commissions because they thought they were entitled to them and asked for them? They claimed that they were entitled to a fee and that they could not demand this from their patients. The dealer naturally was not in a position to give his opinion in the matter at all, so some acquiesced, while others did not.

This custom has been going on for such a long period of time that many of the laity were aware of it. Some took it as a matter of course, others complained and compared notes with patients of other physicians. On this account and because the actual amount of money involved was small, it certainly did not pay, and really wasn't worth asking for.

I hope that this clarifies the points brought up in your letter.

Yours very truly,

ARTHUR C. POMEROY.

DR. BURRAGE'S SECOND ANSWER

September 22, 1934.

Sorry to learn of the practices you mention. Hope the NRA may help to root out these as well as many similar ones in the business world.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
November 30, 1934.

Managing Editor,
The *New England Journal of Medicine,*

In addition to the articles enumerated in our letter of October 29 the following have been accepted:

Abbott Laboratories
- Sulpharsphenamine—Abbott, 0.1 Gm. Ampules
- Sulpharsphenamine—Abbott, 0.5 Gm. Ampules
- Sulpharsphenamine—Abbott, 0.8 Gm. Ampules

Wm. S. Merrell Company
- Diphtheria Toxin for the Schick Test, Diluted with Peptone Solution and Ready for Use
- Diphtheria Toxoid
- Diphtheria Toxoid, Alum Precipitated (Refined)
- Typhoid Vaccine

H. A. Metz Laboratories, Inc.
- Holocaine Solution 1 per cent

Sandoz Chemical Works, Inc.
- Ampules Gynergen Solution 1:2000, 0.5 cc.

G. D. Searle & Co., Inc.
- Tablets Procaine Borate and Epinephrine

Sharp & Dohme
- Rabies Vaccine (Phenol Killed) — Mulford, 7 vials package

Frederick Stearns & Co.
- Insulin Stearns, 100 Units, 10 cc.

Ulmer Pharmacal Co.
- Sodium Morrhuate 5% Solution with Benzyl Alcohol (Ulmer) 5 cc. Vials
- Sodium Morrhuate 5% Solution with Benzyl Alcohol (Ulmer) 20 cc. Vials

Yours sincerely,

PAUL NICHOLAS LEECH, *Secretary,*
Council on Pharmacy and Chemistry.

RECENT DEATHS

ROWE—ALLAN WINTER ROWE, Ph.D., Director of Research at the Evans Memorial Hospital, and an Honorary Fellow of the Massachusetts Medical Society, died at the Huntington Memorial Hospital, December 6, 1934.

Dr. Rowe was born in Gloucester, Mass., July 31, 1879, the son of Arthur Howard Rowe and Lucy Haskell Rowe. His degrees included B.S. from the Massachusetts Institute of Technology, master's degree from Wesleyan University and Ph.D. from the University of Goettingen, Germany.

Dr. Rowe was a member of the Corporation of the Massachusetts Institute of Technology and was recognized as a guiding figure of many of the activities of that institution.

His studies of and contributions to the problems of endocrinology have been of a high order. His scientific spirit and enthusiasm have been stimulating to all who have had the advantage of association with him. He was a Fellow of the American Academy of Arts and Sciences, the American Physical Society, the Economics Engineering Foundation, the Chemical Society of London, and many other scientific bodies of this country and abroad.

He was a prolific writer and his contributions have been important. Although not a doctor of medicine he wrote articles for medical journals and addressed medical societies on several occasions.

Dr. Rowe is survived by his mother now living in Gloucester.

ADAM — JOHN GEIKIE ADAM, M.D., of 281 Main Street, Great Barrington, Massachusetts, died December 1, 1934, at the Fairview Hospital, following an operation. He was born, the son of Dr. George A. and Mary (Geikie) Adam, in Canaan, Connecticut, in 1878. Following his graduation in medicine from the Medical Faculty of Trinity University, Toronto, Canada, in 1900, he served an internship at St. Francis Hospital, New York City, and, after a year's study in Scotland, settled in Great Barrington. Dr. Adam served in the World War as a Captain at Fort Hancock, Augusta, Georgia, and recently earned a majorship in the Reserve Corps. He joined the Massachusetts Medical Society in 1925, and was also a member of the American Medical Association.

His widow, Mrs. Christine (Treblicock) Adam; a daughter, Mrs. Louis A. Seybolt, of Norwich, Connecticut, and a son, Douglas Adam, of New York City, survive him.

HUSSEY — EDWARD JOHN HUSSEY, M.D., of Holyoke, Massachusetts, died at his home, 1093 Dwight Street, December 4, 1934. His office was at 245 Maple Street. He was born in Holyoke, June 29, 1883, the son of Thomas and Mary Hussey. He graduated from Holy Cross College in 1899, and received his M.D. degree from the Harvard Medical School in 1903. His internships were spent at the Carney Hospital and the Eye and Ear Infirmary of the Massachusetts General Hospital. Later he studied abroad.

He enlisted in the World War serving in France at the Mesves Hospital on the Loire, where he attended the wounded of the Meuse-Argonne drive, and was given the rank of Captain. After the Armistice he was transferred to the Luxemburg City Evacuation Hospital until mustered out of service. Later he was in the U. S. Army Reserve Corps with the rank of Lieutenant-Colonel.

He was Chief of the staff in the eye and ear division of both the Holyoke and Providence Hospitals for many years and was President of the staff of the Providence Hospital.

Dr. Hussey was a Fellow of the Massachusetts Medical Society having joined in 1905, and was also a Fellow of the American Medical Association, a member of the American College of Surgeons, the New England Oto-Laryngological Society and the Holyoke Medical Association. He was one of the earlier commanders of the Holyoke post of the American Legion.

During his student years he was prominent in athletics and played with the Harvard varsity football team.

He is survived by his widow, Mrs. Anna (Faulkner) Hussey; a stepdaughter, Frances Faulkner, and a sister, Miss Mary E. Hussey, principal of the Hamilton Street school.

The Massachusetts Medical Society

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee:

Bristol North (Attleboro Section)

Tuesday, December 18, at 4:00 P.M., at the Sturdy Memorial Hospital, Attleboro. Subject: The Common Neuroses and Their Treatment in Private Practice. The Psychoses — Early Diagnosis. William M. Stobbs, M.D., Chairman.

Middlesex South

Monday, December 17, at 4:30 P.M., at the Cambridge Hospital, Mt. Auburn Street, Cambridge. Subject: Cardiovascular Disease (Third Session). Charles E. Mongan, M.D., Chairman.

Norfolk South

Monday, December 17, at 8:30 P.M., at the Quincy City Hospital, Quincy. Subject: Surgery (Third Session). David L. Belding, M.D., Chairman.

Plymouth

Tuesday, December 18, at 4:00 P.M., at the Brockton Hospital, Brockton. Subject: Dermatology and Syphilis. Walter H. Pulsifer, M.D., Chairman.

Worcester

Wednesday, December 19, at 7:30 P.M., in the Auditorium of the Nurses' Home of the Memorial Hospital, Worcester. Subject: Endocrinology (Second Session). Erwin C. Miller, M.D., Chairman.

NOTICES

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday, December 20, in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students. These clinics will be repeated on Thursdays until May*.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr. Christian. These are open to all physicians.

*The clinic for December 27 will be omitted.

A LOST CERTIFICATE OF REGISTRATION

Dr. Dorothea May Moore of 55 Brattle Street, Cambridge, has reported the loss of her certificate issued by the Massachusetts Board of Registration in Medicine. Any information relating to this will be appreciated by Dr. Moore.

AN INVITATION TO FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY

HARVARD UNIVERSITY MEDICAL SCHOOL COURSES FOR GRADUATES

A list of activities in the Department of Pediatrics of the Children's Hospital and of the Massachusetts General Hospital, to which members of the Massachusetts Medical Society are cordially invited, appears below. These exercises are offered without fees as a part of the Courses for Graduates, of the Harvard Medical School, to those who are interested in keeping in touch with Clinical Pediatrics, without enrolling in the prescribed courses.

The Children's Hospital and the Infant's Hospital:

Clinical-Pathological Conference — Thursdays, 12:00 M. (Amphitheatre).

Clinic—Medical, Surgical and Orthopedic Services—The first Monday in each month, 4:00 P.M. (Amphitheatre).

Clinic — Alternating Rounds between Surgical Service, Peter Bent Brigham Hospital (Amphitheatre) and Surgical and Orthopedic Services, Children's Hospital (Amphitheatre) —Thursdays, 4:30 P.M.

The Massachusetts General Hospital—The Children's Medical Service:

Clinical meeting of the staff—Alternate Fridays, 12:00-1:00 P.M. (Ether Dome).

Ward Visit — Tuesdays, 2:30-4:00 P.M. (Massachusetts Eye and Ear Infirmary).

Seminar for discussion of recent investigations and literature — Tuesdays, 4:00-5:00 P.M. (Pediatric Laboratory).

MAYNARD LADD, M.D.,
In Charge of Courses for Graduates,
Department of Pediatrics.

ANNOUNCE SEVENTH GORGAS ESSAY CONTEST

CONTEST FOR HIGH SCHOOL STUDENTS DEALS WITH GORGAS' WORK IN DISEASE CONTROL

Washington, D. C. The seventh annual essay contest for high school juniors and seniors sponsored by the Gorgas Memorial Institute, Washington, D. C., was announced December 10 by Admiral Cary T. Grayson, President of the Institute.

The contest opened in all high schools on that day, and will close on Friday, February 15, 1935. The subject will be "Gorgas' Control of Transmissible and Other Preventable Diseases." The donors of the prizes are Mr. and Mrs. Henry L. Doherty, of New York City.

High school winners will receive a Gorgas medal, and will qualify for entrance in the State contest. State winners will be awarded $10 in cash, and will qualify for entrance in the National contest. Winner of the first national prize will receive $500 in cash, and a travel allowance of $200 to Washington to receive the award; second National Prize will be $150 in cash, and third National Prize $50 in cash.

Winners in each high school will be selected by a faculty committee appointed by the principal. The winning essay, with official entrance blank and photograph of the winner, will be forwarded by the principal to the Gorgas Institute, for entry in the State contest. A committee of three State officials will judge the winning school papers and select the winner in each State. The winning State essays will then be entered in the National contest, the judges of which will be the U. S. Commissioner of Education, the Surgeon General of the U. S. Public Health Service, and the Director General of the American College of Surgeons.

Eighteen thousand five hundred students participated in the last contest. The winner was Mr. George Delhomme, Jr., Houston, Texas, who received his award at the White House from President Roosevelt; second prize was awarded to Mr. John E. Dacey, Biloxi, Mississippi, who won $150 in cash, and third prize of $50 in cash was won by Miss Dorothy A. Laurer, Atchison, Kansas.

For detailed announcement and instructions write to the Gorgas Memorial Institute, 1835 Eye Street, N. W., Washington, D. C.

REPORTS AND NOTICES OF MEETINGS

THE TRUDEAU SOCIETY

A meeting of the Trudeau Society was held in the Beth Israel Hospital on October 30, 1934. Dr. John Alexander, Professor of Surgery, University of Michigan, spoke on "The Indications for Surgical Collapse in Pulmonary Tuberculosis." After a brief introduction by Dr Richard Overholt, Dr. Alexander started his lecture with a discussion of the results of various methods of collapse treatment of pulmonary tuberculosis in the Jackson County Sanatorium and the Michigan State Sanatorium. His statistics showed that at the time of discharge eighty per cent of the cases in the Jackson County Sanatorium of whom forty-eight per cent received collapse therapy, were either arrested or improved, as compared with fifty-eight per cent in all United States civilian sanatoria. He believes that the figures which he presented compare favorably with any group of cases not treated by collapse therapy. Seventy-six per cent of the patients discharged from the Michigan State Sanatorium received some form of collapse therapy. Of those receiving this treatment eighty-two per cent had a phrenic paralysis, usually temporary; fifty-nine per cent received pneumothorax; thirteen per cent received thoracoplasty; twenty-seven per cent had phrenic paralysis alone; and only eight per cent pneumothorax alone; other operations were used less frequently.

Of the University Hospital group of patients who received phrenic paralysis alone, the tuberculosis was arrested in thirty-four per cent and improved in an additional thirty-five per cent. From his own experience he finds that phrenic paralysis has a favorable influence on small cavities or minimal lesions, but that a cavity greater than eight centimeters in diameter is not likely to be closed. The high percentage of improvement in minimal lesions justifies the operation.

Intrapleural pneumonolysis closed the cavities in eighty-three per cent of the cases in which division of adhesions was complete and in fifty per cent of those in which division was incomplete. Dr. Alexander believes that this operation is of definite value for a limited group of patients with inadequate pulmonary collapse by pneumothorax. When the closed method is unsafe, an open method of division should be employed. He uses intercostal neurectomy where surgical aid is necessary for predominantly exudative lesions for which pneumothorax is impossible and a thoracoplasty is contraindicated. Extrapleural pneumonolysis with paraffin filling, known as the "paraffin operation," has been used by Dr. Alexander for the past four years. Customarily he employs this method only when his patients can have nothing else, the lesion usually being bilateral. He finds that the posterior route gives suitable cleavage in a higher percentage of cases than does the anterior route. By the posterior route, cavities have been closed in eighty-five per cent of the cases in which suitable cleavage is attained, this being in eighty-one per cent of the cases operated on. Eighty-two per cent of these later had negative sputum.

In the thoracoplastic treatment of cavernous pulmonary tuberculosis it is necessary to resect all of the ribs overlying the cavity and those which lie immediately above and below it. As many stages as are necessary should be used to accomplish this result. Sixty-six per cent of Dr. Alexander's patients of the past two years have closed cavities, as compared with less than thirty-seven per cent before 1925. The improvement in results is due to the fact that more ribs have been resected. The death rate has been reduced from thirty-eight per cent to thirteen per cent.

Dr. Alexander then presented a series of slides representing diagrammatically different pulmonary lesions and discussed the treatment that he would use in each case, provided that the patient himself, as well as his lesion, presented a suitable indication. For the minimal lesion, although eighty to eighty-five per cent get well with bed rest alone, he believes that a temporary phrenic paralysis is definitely indicated to increase the chance of, and hasten, permanent recovery. In a beginning cavity he first uses a temporary phrenic paralysis and if, in the actively progressive type of lesion, there is not definite improvement within from two to four weeks, pneumothorax is instituted. If there is lobar infiltration, he recommended a small pneumothorax, because of the liability to formation of pleural adhesions and sudden cavity formation. In small fresh cavities without surrounding infiltration temporary phrenic paralysis, perhaps supplemented by pneumothorax, is indicated.

If the cavity is older and the wall harder, phrenic paralysis should be tried, but if insufficient improvement occurs after a reasonable time, pneumothorax should be undertaken and, if unsuccessful, a partial thoracoplasty may be used. In any cavernous lesion in which the walls are definitely hard, phrenic paralysis probably will not help and pneumothorax should be used immediately. In the presence of several cavities, pneumothorax is indicated, and if adhesions prevent adequate collapse, a thoracoplasty should be done. In huge single unilateral cavities a large, complete, many-staged thoracoplasty is indicated.

The aim of all treatment must be complete cure, and not improvement alone. When the pneumothorax no longer helps, a thoracoplasty should be done without waiting for the patient to become worse. The improvement of subjective symptoms should not lead the physician into a feeling of false security. Bilateral lesions are very common in practice and should be treated aggressively. A fibrotic lesion at one apex does not contraindicate thoracoplasty on the other side. There is often a marked improvement in the cavities of the better lung when thoracoplasty or pneumothorax is used on the side with the more extensive lesions, probably due to improve-

Vol. 211
1934

ment in the patient's resistance to his disease and to a slight collapse of the better lung, coincident with the shift of the mediastinum. At times bilateral thoracoplasty may be used.

In conclusion, Dr. Alexander pointed out that collapse therapy must be aggressive to be effective, and that the risk is small except in those patients who would soon die of tuberculosis without treatment.

Dr. Churchill discussed the paper and compared collapse therapy with a game of chess in which one move must follow another. Patients must be followed and the goal is not just improvement, but is the disappearance of the tubercle bacillus from the sputum.

Dr. Floyd pointed out that in New England phrenic paralysis tends to be neglected and stressed the necessity of early aggressive treatment.

Dr. Emerson said that sixty-eight per cent of the cases at Rutland are getting collapse therapy, and eighty per cent of these are getting pneumothorax. He feels that much time is lost if this treatment is not instituted at an early date, and that phrenic paralysis alone has been disappointing in his estimation.

After a short general discussion, Dr. Alexander closed the meeting in reply to Dr. Hawes' query concerning the difficulty of persuading the public to have these therapeutic measures instituted, by saying that he has found that sanatorium patients, after talking with those who have received collapse therapy, frequently insist on collapse treatment, and that it is rare for a patient who has seen the results in his fellow patients to refuse treatment.

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The November meeting of the New England Roentgen Ray Society was held at the Boston Medical Library on November 16, 1934. The meeting was opened by Dr. Thomas R. Healy, and after the minutes of the last meeting had been read, and the business part of the meeting concluded, Dr. Joseph H. Marks opened the scientific session by a discussion of "Diaphragmatic Hernia and Associated Conditions." He reported Dr. Truesdale's operations on sixteen patients in the past fifteen years for this condition, with only three failures and two deaths.

After a brief review of the anatomy of the diaphragm, he gave a classification and description of the different types of diaphragmatic hernia and illustrated each group with one case. The first type is known as the thoracic stomach. In this condition the esophagus is short, and the entire stomach is above the diaphragm. This constitutes a small group, there being only six proved cases in the literature. The esophagus usually terminates at the level of the bifurcation of the trachea in this type, and, therefore, such stomach has never been below the diaphragm. Strictly speaking, this condition is not a hernia, is not incompatible with life, and there is no known operative treatment. Patients with this condition may have no subjective complaint.

The second group includes those having a diaphragmatic hernia with a congenitally short esophagus. This is not a true hernia either, since part of the stomach is always above the diaphragm. The esophagus terminates at the eighth or ninth thoracic vertebra, and we must be sure that it is truly shortened, and not just tortuous, because if it is congenitally short, there is no operative treatment. During the past year Dr. Truesdale operated on such a case, but found it impossible to reduce the herniation, since the esophagus was too short.

The third group consists of the so-called hiatus hernias, in which there is a herniation of the stomach through the esophageal hiatus. This is the most numerous group, and the condition is a true hernia, as the stomach was once in its normal position below the diaphragm and the esophagus is full length. The other organs of the abdomen may be involved, although usually they are not. The stomach may remain above the diaphragm at all times if adhesions hold it there, but usually falls back into its correct position when the patient stands erect. It may be due to a relaxed hiatus and increased abdominal pressure. It may follow pregnancy, an increase in obesity, or an abdominal tumor. There is probably a congenital weakness of the surrounding muscle, though the actual herniation may not occur until later in life.

The hiatus hernia is also called the paraesophageal hernia. In five to ten per cent of these cases a gas bubble may be seen above the diaphragm by x-ray. A thickened mixture of barium often aids in the x-ray diagnosis. It is necessary to do routine barium enemas on all these cases to be sure that the colon is not involved. The x-ray is very helpful in showing the completeness of the cure after the operation.

In the fourth group of his classification, Dr. Marks included other congenital types. These usually occur in children and commonly are through the foramina of Bochdalek or Morgagni. It is more common on the left than on the right, and the spleen, as well as the large and small bowel, is often involved. Operative repair usually effects a complete cure. An example of this type was shown in which one-third of the stomach was above the diaphragm in a seventeen months' old infant. The colon likewise was involved, and postoperative films showed a complete correction of the condition.

The fifth type includes the traumatic hernias. These may occur in children or adults in any part of the diaphragm, although more commonly on the left side. Automobile accidents are the most common cause, although coasting accidents are important. In these cases intestinal obstruction is a common cause of death. An example of a forty-three year old man with a shrapnel wound in the chest and diaphragm was shown. A barium enema showed that the bowel was involved to such an extent that the hepatic flexure was straightened out.

Postoperative films demonstrated the complete correction of the condition.

The sixth group includes the cases of eventration of the diaphragm. This is more common on the left than on the right side, and occurs more in men than in women. The fault lies more in the phrenic nerve than in the muscle, there being a paralysis of the diaphragm on that side, usually due to birth injuries, and commonly associated with brachial palsies. There has been no report of a successful operation. A case was presented in which a recurrent carcinoma of the breast had paralyzed the phrenic nerve.

The last group consisted of those very rare cases of a congenital absence of the left side of the diaphragm.

After Dr. Marks' excellent presentation of the above material, Dr. Truesdale showed a film, which he believes is probably the first talking medical film produced. The picture showed the mechanics of the diaphragm and the ways in which these are altered when there is a hernia of this structure. The effect on the circulation was graphically demonstrated, as well as the way in which an automobile accident may cause a traumatic hernia. When such a condition occurs the left lung is almost entirely collapsed, the heart is displaced to the right, and there is a partial collapse of the right lung. The transverse colon is often pulled up with the stomach into the chest. A cecostomy is often a preliminary step used to relieve the intestinal obstruction before the diaphragmatic defect is repaired. The paradoxical diaphragm where there is a seesaw action of the entire diaphragm, due to the paralysis of one phrenic nerve, was well demonstrated.

A second film demonstrated the usual physical signs with a dextraposition of the heart, when the hernia is of any magnitude. The film recorded the sounds in the chest, as heard with the stethoscope. The steps in the operative approach were demonstrated. A flap containing all the layers of the thoracic wall is laid back, the opening spread, and two per cent novocaine injected into the phrenic nerve. By an increased pressure anesthesia the excursion of the lung is controlled. After the defect in the diaphragm has been enlarged, the reduction of the stomach or intestine is attempted. Frequently it is difficult to get all of the organs back into the abdominal cavity, as they may be said to have "forfeited their right of domicile". Especially is this true if there is not absolute relaxation of the abdominal musculature, and ether anesthesia is necessary. After the reduction of the hernia, the aperture is closed with a running suture of No. 10 silk, and the opening is closed not too closely about the esophagus. This is reinforced by two or three mattress sutures of silk and the flap is closed with sutures placed so as to approximate the edges of the pleura and the cut ends of ribs. A stomach tube is passed at the end of the operation and an inlying rectal tube is employed for four or five days.

In discussing the paper Dr. Schatski pointed out the increase in the frequency of this diagnosis in the past ten years. He said a great many of the common hiatus hernias exist in elderly patients, and he suggested that it may represent a degenerative change in the muscle of the diaphragm. He questioned whether the x-ray appearance of a shortened esophagus really meant that it was shortened, and said that often when abdominal pressure is increased by the insufflation of air into the colon and the stomach is temporarily displaced into the thoracic cage, the esophagus does not appear tortuous, therefore, he suggested that the esophagus may not truly be shortened, but that the stomach is held in place by adhesions.

Dr. Sosman said that in most of the hiatus hernias the symptoms were not referable to the hernia, and that the types found in elderly people are usually accidentally discovered, and do not need surgery. He likewise believes that adhesions are very important in this condition and that this difficulty has been largely overcome by the transthoracic approach of Dr. Truesdale.

Dr. Marks replied that, although pressure plays a definite part, there are many cases in middle-aged women who are usually overweight, and he believes that there is a congenital factor in these cases. He likewise believes that there are some cases where the esophagus is definitely short.

Dr. Truesdale spoke briefly on the dangers involved in taking deep sutures in the region around the esophagus, because of the proximity of the aorta, the inferior vena cava, as well as the inferior azygos vein. He then showed a remarkable colored film on the central nervous system. First the peripheral reflex arc was demonstrated. Each of the twelve cranial nerves was diagrammatically shown and briefly described. The first, or olfactory nerve, with its connecting pathways and centers in the brain, as well as the distribution of the fibres over the nasal septum and the upper two turbinates were demonstrated.

In closing, an amusing and instructive film was shown in which the mechanism of sound production in moving pictures was illustrated.

HARVARD MEDICAL SOCIETY

A recent meeting of the Harvard Medical Society was held in the amphitheatre of the Peter Bent Brigham Hospital on November 13, 1934. The meeting was opened by Dr. I. Chandler Walker. The first case was one of asthma in a forty year old woman who has had a total of nine admissions from 1920 until the present time for the treatment of her asthma. By routine skin testing she has been found sensitive to ragweed, timothy, feathers, and horsehair. She had her first attack at the age of sixteen and they have been intermittent since that time, usually starting three to four days before menstruation and being most severe in the fall of the year. She has been entirely free of her asthma during her

pregnancies, and had no attacks for five years after an attack of pneumonia. The present attack had started three weeks previous to her entry, with a cold. It had been well controlled by ephedrin. She was dyspneic and showed the signs of typical asthma with an emphysematous chest, prolonged expiration, a slightly enlarged heart, and musical squeaks and groans throughout both lungs. She had a white blood count of eleven thousand with a seven per cent eosinophilia. A sputum examination showed many white blood cells, thirty per cent of which were eosinophils. Skin testing showed that she was positive only to horse proteins and oats. One to three administrations of adrenalin a day and a codeine cough syrup controlled her asthma and cough.

Dr. Walker discussed this case and said that there is frequently a history of a relationship to the menstrual periods, and that he believed that this case was related to infection. He believes that skin tests do not change and that they had probably been improperly read, although during an attack skin tests may become negative, since the skin apparently becomes desensitized without a desensitization of the mucous membranes. Dr. Rackemann stressed the importance of obtaining the exact dates on which symptoms began for each attack, and also the importance of accounting for all the time which elapsed between each attack. He thought this case was probably due to ragweed, although Dr. Walker reaffirmed his belief that it was on an infectious basis.

The second case was that of a forty-five year old married painter who entered the hospital two weeks ago complaining of an inability to retain solid food. In 1928 he had had a duodenal ulcer and a gastric operation. He has also had a laryngectomy for carcinoma of the larynx. By x-ray there was shown an obstructing lesion of the cardia and the lower end of the esophagus. By means of a gastrostomy his general nutrition was improved and then a small string swallowed, to which was attached from the gastric side some radium. This was brought into close approximation with the lesion and one thousand millicurie hours was administered. Dr. Cutler discussed this unpublished method of treatment of esophageal cancer which has been successfully used at Ann Arbor. The one thousand millicurie hour doses are repeated at intervals until a total of four thousand millicurie hours have been administered.

Dr. Walker then introduced Dr. George Piness from Los Angeles, California, who spoke on "Gastro-Intestinal Allergy and Its Diagnosis." He opened his lecture by stating that, although most papers deal only with food sensitivity, contact with almost any protein may result in symptoms in an allergic individual. The reactions are usually multiple and usually directly traceable to etiologic factors.

Dr. Piness classified gastro-intestinal allergy as follows: first, angioneurotic edema which is common to both adults and children; secondly, canker sores; thirdly, acute gastro-intestinal symptoms simulating peptic ulcer and other similar conditions; fourthly, acute gastritis, enteritis, or colitis; and fifthly, in infants and children, pylorospasm, colic, cyclic vomiting, etc.

The differential diagnosis depends upon the recognition of the allergic nature of the condition, the differentiation from organic and constitutional diseases, and the determination of the cause. Allergic conditions are often treated surgically and medically without results. Fifty per cent of these cases give a positive family history of allergy, and probably if all patients were more familiar with their family histories this would be nearer to one hundred per cent. The past history invariably gives evidence of some other type of allergy, such as eczema, hayfever, asthma, vasomotor rhinitis, etc.

The chief object of the physical examination is to rule out other organic diseases. There are certain physical signs which are characteristic of allergy, the chief of these being lesions of the conjunctiva, nose and throat, as well as a dermatitis. There are two groups of specific physical signs. The first of these is acute and includes edema and itching of the mouth and lips, abdominal pain and distention in which there is never any rigidity. The temperature is normal at the onset, and may rise to a peak during recovery, and there are occasional pains in the joints. The second group of signs is chronic and includes eczema, dull cramp-like abdominal pain, and distention. X-ray studies are usually negative, although pylorospasm or spasm of the colon may be very definite. Gastric analysis gives us no information or signs of allergy. The mucous membranes give a typical picture with edema and an infiltration of eosinophils.

The blood count is usually normal. Contrary to the usual textbook teaching, the eosinophil count is low in the height of an attack, and rises with improvement, this being brought out by daily counts, using a solution of acetone and distilled water, which destroys all other types of cells. Skin tests aid in confirming the diagnosis of allergy, and Dr. Piness feels that skin reactions do change from time to time, depending on the amount of protein shock received by the body at the onset of the attack. At the present time these tests are read much more critically than in the past.

Angioneurotic edema of the face, lips, and tongue is a "giant urticaria". Canker sores often appear in the mouth with other allergic manifestations. They have an acute onset and a chronic course, and appear on the gums, tongue, and mucous membranes of the mouth. They are usually greyish blue in color and sharply defined.

The acute abdominal symptoms are due to an angioneurotic type of allergy. If these cases are operated upon, an edema of the mucous membrane of the gut is found. It is often associated with arthritis and erythema. The symptoms are acute with pain that may be local or diffuse, usually local-

ised in the later stages. The temperature is normal at the onset and rises with improvement. A second type of these acute abdominal symptoms comes in definite attacks at regular intervals which can almost be timed in their onset, duration, and rapid recovery. Dr. Piness thinks there is a threshold in all allergic individuals and the reaction depends upon this threshold. Thus there may be an accumulation of subthreshold doses which causes symptoms when the threshold is reached. In the recurrent type of abdominal symptoms there is usually a prodromal stage with malaise, pain, and gastro-intestinal disturbance, which is followed by acute colicky and cramp-like pain. The first type mentioned above without the prodromal symptoms usually has a low threshold, and the second type with the prodromal symptoms is a result of the accumulation of subthreshold doses reaching a much higher threshold. The skin tests are usually positive in both types, and epinephrin may be used as a therapeutic test which causes the very rapid disappearance of the distention and discomfort.

Henoch's purpura is another type of allergic manifestation in which there are localized vascular spasms in response to certain allergens, especially foods, and usually associated with an urticaria before the onset of purpura. The platelets are normal.

The acute gastritis, enteritis, and colitis of an allergic nature may follow the use of sera used for therapeutic purposes as well as overdoses of pollens. There is sudden onset with nausea, vomiting, and diffuse cramp-like abdominal pain. The skin reactions are very positive. Sometimes these attacks are seasonal in those who are sensitive to both foods and pollens. Most of the cases are in females at the time they are having hay-fever. The removal of the foods and the treatment with hay-fever pollen will cure these conditions, but no relief is obtained if only one is removed. These foods can be eaten at any time except when the patient has hay-fever, this being an excellent example of the accumulated action mentioned above.

The digestive disturbances in infancy and childhood were then discussed by Dr. Piness. Vomiting usually occurs a few weeks after birth, after feeding, and is often confused with pyloric stenosis. Milk is usually the offender. From the fourth to the eighteenth month the child may develop digestive disturbances immediately after the intake of food and there is usually an erythema about the mouth or lips with occasional edema of the pharynx and larynx, as well as bronchial asthma. This type comes with the addition of new foods, especially eggs. The skin tests are strongly positive, and the condition is relieved when the offending food is eliminated. Skin tests are not satisfactory under the age of six months. Cyclic vomiting may be allergic and usually occurs in children before the age of two years. Some may occur at any time and others are seasonal, usually in the summer months, and there is frequently bronchial asthma with it. It is the result of seasonal foods or pollens, or both. About two per cent of the entire normal population is considered to be allergic. The colic of infancy occurs in healthy, well-fed children, in whom the only manifestation is abdominal pain and crying. There is no temperature, constipation, or diarrhea. The child is normal in all other respects, although there is often a dermatitis on the face, and the condition is usually attributed to the mother's milk or to cow's milk.

Dyspepsia in adults may be allergic. The x-ray and laboratory findings are entirely negative. There is a positive family history and often some other allergic manifestations in the individual. It is common in asthmatics, occurs especially at night, and is relieved effectively by epinephrin. Dr. Piness believes that there is no such thing as bacterial asthma, and if we study each case sufficiently, we can usually find the allergic cause.

Chronic abdominal pain, mucous colitis, and pruritus ani may be on an allergic basis in people with positive allergic history, but other conditions must be ruled out.

Dr. Walker discussed this paper briefly and Dr. Francis M. Rackemann delivered a short paper on "New Concepts in Allergy with Especial Reference to Eczema." He said that much had been learned in the past few years regarding eczema. He defined allergy as "the capacity to react in an abnormal way to a normal stimulus". The eczema of the allergic child is very characteristic. It occurs on the face, hands, antecubital spaces, and popliteal spaces. The offending substances are in the blood stream, and approach the skin from underneath. Their entrance into the body is through the gastro-intestinal or respiratory tracts, and is in direct contrast to the contact dermatitis which comes from direct contact of the offending substance with the skin and in which the lesions are limited to the area of contact. Numerous substances may cause these lesions. In this contact dermatitis the patient is sensitized through the skin and ordinary skin tests are negative, because only the superficial layers of the skin are sensitive. Patch tests are used to bring out this type of sensitivity and they take from three to four days to develop, in contrast to the rapid action of ordinary skin tests. He suggested calling the typical allergic eczema of children "atopic eczema". "Dermatoses" are the original infections, while the "dermatids" are the areas of hypersensitiveness resulting from this infection. The skin may be sensitive to a number of drugs, among them phenolphthalein, acetanilid, and phenacetin. Direct fungus infections may simulate or complicate these true allergic manifestations.

THE MALDEN MEDICAL SOCIETY

The next meeting will be held on December 18, 1934, at Malden Electric Company Hall, at 8:30 P.M.

Speaker: Frank H. Lahey, M.D.

Subject: Gastric Ulcer and Its Treatment.

Discussion: Drs. Silver and Duggan.

A. H. WARREN, M.D., *Secretary.*

Vol. 211
1934

SOCIAL INSURANCE

Social insurance and its bearing on the medical profession will be the subject of an open meeting arranged by the Allied Medical League, to be held at the Boston Medical Library on Monday, December 17, at 8 P.M.

Physicians, dentists, nurses and all who are interested are invited.

RODERICK PACHMANN, *Secretary.*

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The December meeting will be held at the Boston Medical Library, Friday, December 21, 1934, at 8:15 P.M.

SCIENTIFIC SESSION

"The Lateral X-Ray Film in the Diagnosis of Pathology in the Region of the Middle Lobe." Dr. Donald S. King, Massachusetts General Hospital, Boston, Mass.

The usual dinner will be at the Harvard Club.

T. R. HEALY, M.D., *President,*
370 Marlborough Street,
Boston, Mass.

RICHARD DRESSER, M.D., *Secretary,*
Collis P. Huntington Memorial Hospital,
Boston, Mass.

BOSTON MEDICAL HISTORY CLUB

The regular monthly meeting of the Boston Medical History Club will be held at the Boston Medical Library, 8 Fenway, on Monday evening, December 17, at 8:15 o'clock.

The speaker of the evening will be James F. Ballard, Director of the Boston Medical Library, who will talk on medieval and Renaissance textual manuscripts and early printed books before 1600 A.D.

Mr. Ballard will discuss the development of the medical book from a textual point of view for a period of about 300 years from 1250 to 1550 A.D. He also will describe the ideal fifteenth century scientific library which he now is assembling at the Boston Medical Library and briefly comment on the technical work of the scribe, the rubricator and illuminator and their relation to the early printers. The talk will be illustrated by examples from the large collections of about 600 volumes of manuscripts and books published before 1500 and owned by the Boston Medical Library.

The meeting is open to all interested persons.

BROOKFIELD MEDICAL CLUB

A regular meeting of the Brookfield Medical Club will be held on Wednesday afternoon, December 19, 1934.

The guest speaker will be Dr. Samuel H. Epstein, Assistant in Neurology and Psychiatry in the Harvard Medical School, and Junior Visiting Neurologist of the Boston City Hospital. His subject will be "Treatment of General Paresis with Tryparsamide."

M. W. PEARSON, M.D.
Ware, Mass.

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a meeting of the Surgical Section in the Ladies' Aid Room (former nurses' dining room), Talbot Memorial, 82 East Concord Street, on Friday, December 14, 1934, at 12 noon.

Dr. Samuel L. Marnoy and Dr. William M. Konikov will present cases and Dr. Charles F. Branch will discuss the cases from the pathological aspect.

MILO C. GREEN, *Secretary.*

BIOLOGICAL SCIENCES LIBRARIANS

A meeting of librarians, library workers and all persons interested in libraries in the fields of medicine, sanitary science, public health, general biology, zoölogy, natural history, plant life and related subjects, will be held at the Boston Medical Library, 8 Fenway, on Wednesday evening, December 19, at 7:30 o'clock.

The meeting will be held under the auspices of the Boston Chapter of the Special Libraries Association and is called for the purpose of organizing a Biological Sciences Group in Boston and Massachusetts.

Such a group can be of great benefit to the community and would furnish a means of close coöperation of all of the libraries in the group.

Drs. Lincoln Davis, President, and Charles F. Painter, Librarian, of the Boston Medical Library, and Reginald Fitz, Chairman of the Harvard Medical School Library, have accepted invitations to be present at the meeting. All persons interested in biological libraries of any kind are cordially invited to attend the meeting.

JAMES F. BALLARD, *President,*
Boston Chapter—Special Libraries Assn.

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society will be held at the Evans Memorial Auditorium, 82 East Concord Street, Boston, at 8 o'clock on Wednesday evening, December 19, 1934.

PROGRAM

The Relation of Muscle Atrophy to Joint Injury and the Value of Physical Therapy in This Condition. Frank R. Ober, M.D., Boston.

The Council will meet at 7:45 o'clock.

Physicians and medical students are cordially invited to attend.

ARTHUR H. RING, M.D., *Secretary.*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The next meeting of the New England Ophthalmological Society will be held on Tuesday, December 18, 1934, at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston.

PROGRAM

9:00 A.M. Clinic and operating room.

11:30 A.M. Neuro-ophthalmological conference.

4:00 P.M. Clinico-pathological conference. Demonstration of interesting cases.

EVENING PROGRAM

8:00 P.M.

Cases:

1. Voluntary Exophthalmos. Dr. E. B. Dunphy.
2. Hysterical Blindness. Dr. William D. Rowland.
3. Von Hippel's Disease. Dr. S. Wilkins.

Paper:

The Development of the Organ of Vision from Its Lowest Form up to the Eye of the Primates. Dr. Henry M. Emmons.

Discussion: A. S. Begg.

BENJAMIN SACHS, M.D., *Secretary.*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, DECEMBER 17, 1934

Monday, December 17—

*8 P.M. Social Insurance. Boston Medical Library.

*8:15 P.M. Boston Medical History Club. Boston Medical Library.

Tuesday, December 18—

All day session. New England Ophthalmological Society. See page 1123.

†2:30-4 P.M. Ward visit (Pediatrics). Massachusetts Eye and Ear Infirmary.

12 M. South End Medical Club. 554 Columbus Avenue, Boston.

†4-5 P.M. Seminar (Pediatrics). Massachusetts General Hospital. Pediatric Laboratory.

Wednesday, December 19—

*7:30 P.M. Biological Sciences Librarians. Boston Medical Library.

*8 P.M. New England Physical Therapy Society. Evans Memorial Auditorium.

Thursday, December 20—

*12 M. Clinico-Pathological Conference. Massachusetts General Hospital. Pathological Building.

†12 M. Clinico-Pathological Conference. Children's Hospital Amphitheatre.

*3:30 P.M. Medical Clinic. Dr. Christian. Peter Bent Brigham Hospital Amphitheatre.

†4:30 P.M. Surgical Clinic. Children's Hospital Amphitheatre.

Friday, December 21—

†12 M. Clinical meeting of Children's Medical Staff, Massachusetts General Hospital Ether Dome.

8:15 P.M. The New England Roentgen Ray Society. Boston Medical Library. (Usual dinner at Harvard Club.)

Saturday, December 22—

*10-12. Medical Staff rounds. Dr. Christian. Peter Bent Brigham Hospital.

*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

December 13—Alpha Omega Alpha, Harvard Chapter. Initiation banquet, University Club, Boston, 7 P.M.

December 14—Massachusetts Memorial Hospitals. See page 1123.

December 14—Massachusetts Psychiatric Society will meet at the Psychopathic Hospital at 8 o'clock.

December 14—William Harvey Society will meet in the auditorium of the Beth Israel Hospital, Boston, at 8 P.M.

December 17—Boston Medical History Club. See page 1123.

December 17—Social Insurance. See page 1123.

December 18—South End Medical Club will meet at 12 noon at the Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston. Dr. Winfred Overholser will speak on "The Activities of the Department of Mental Diseases."

December 18—New England Ophthalmological Society. See page 1123

December 18—The Malden Medical Society. See page 1122.

December 19—New England Physical Therapy Society. See page 1123.

December 19—Brookfield Medical Club. See page 1123.

December 19—Biological Sciences Librarians. See page 1123.

December 20—Clinic at the Peter Bent Brigham Hospital. See page 1117.

December 21—The New England Roentgen Ray Society. See page 1123.

MASSACHUSETTS DIETETIC ASSOCIATION

January 8—Tuesday, 8 P.M. "Careers and Natural Abilities," Professor Johnson O'Connor, Human Engineering Laboratory, Stevens Institute of Technology, Hoboken, N. J.

February 12—Tuesday, 8 P.M. "Diabetic Children," Dr. Priscilla White, Joslin Diabetic Unit.

March 12—Tuesday, 8 P.M. "The Effect of Diet on Anemia," Dr. Lewis Diamond, Instructor in Medicine, Harvard University Medical School, Associate Physician, Children's Hospital.

March 19—Tuesday, 2 P.M. Field Trip: Visit Storehouse, First National Stores.

April 9—Tuesday, 8 P.M. "Small Hospital Problems," Miss Margaret Copeland, Superintendent, Free Hospital for Women.

April 29 - May 3, 1935—The American College of Physicians will meet at Philadelphia. For information address Mr. E. R. Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia, Pa.

June, 1935—Medical Library Association will meet in Rochester, N. Y. For details address the Secretary: Miss Frances N. A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Semi-Annual Meeting will be held in January and the Annual Meeting in May, time, place and subject to be announced.

E. S. BAGNALL, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings will be held on the second Tuesday of January, March, and May at the Weldon Hotel, Greenfield, Mass.

CHARLES MOLINE, M.D., Secretary.

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

January 9, 1935—Melrose.

March 13, 1935—Wakefield.

May 8, 1935—Winchester.

K. L. MACLACHLAN, M.D., Secretary.

1 Bellevue Street, Melrose.

PLYMOUTH DISTRICT MEDICAL SOCIETY

January—Goddard Hospital.

March—Plymouth County Hospital.

April—Lakeville Sanatorium.

SUFFOLK DISTRICT MEDICAL SOCIETY

January 23, 1935—General Meeting in association with the Boston Medical Library. Speaker and subject to be announced later.

March 27, 1935—Clinical Meeting at the Boston Lying-in Hospital.

April 24, 1935—Clinical Meeting at the Children's Hospital.

The medical profession is cordially invited to attend all of these meetings.

ROBERT L. DeNORMANDIE, M.D., President.
GEORGE P. REYNOLDS, M.D., Secretary.
HENRY T. HUTCHINS, M.D., Boston Medical Library.

WORCESTER DISTRICT MEDICAL SOCIETY

January 9, 1935—Wednesday evening. Worcester City Hospital, Worcester, Mass. 6:30 P.M.: Buffet supper. 7:30 P.M.: Scientific program and business session. An

nouncement of subjects and speakers to be presented at a later date. Buffet supper complimentary by the Hospital.

February 13, 1935—Wednesday evening. Worcester State Hospital, Worcester, Mass. 6:30 P.M.: Dinner. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Dinner complimentary by the Hospital.

March 13, 1935—Wednesday evening. The Memorial Hospital, Worcester, Mass. 6:30 P.M.: Buffet supper. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Buffet supper complimentary by the Hospital.

April 10, 1935—Wednesday evening. Worcester Hahnemann Hospital, Worcester, Mass. 6:30 P.M.: Dinner. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Dinner complimentary by the Hospital.

May 8, 1935—Wednesday afternoon and evening. Annual Meeting of the Worcester District Medical Society. The time and place of this meeting will be announced later.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester.

Vol. 211
1934

BOOKS RECEIVED FOR REVIEW

A Manual of the Practice of Medicine. Prepared Especially for Students. By A. A. Stevens. Thirteenth Edition, Revised. 685 pp. Philadelphia and London: W. B. Saunders Company. $3.50.

Developmental Anatomy. A Text-Book and Laboratory Manual of Embryology. By Leslie Brainerd Arey. Third Edition, Revised. With 547 illustrations, many in color. 593 pp. Philadelphia and London: W. B. Saunders Company. $6.50.

Synopsis of Genitourinary Diseases. By Austin I. Dodson. 275 pp. 111 illustrations. St. Louis: The C. V. Mosby Company. $3.00.

Maternal Mortality in Philadelphia. 1931-1933. Report of Committee on Maternal Welfare. Philip F. Williams, M.D., Chairman. 143 pp. Philadelphia: Philadelphia County Medical Society, 1934. $1.00.

Allergy and Applied Immunology. By Warren T. Vaughan. Second Edition. 420 pp. St. Louis: The C. V. Mosby Company, 1934. $5.00.

Diabetic Manual for Patients. By Henry J. John. Second Edition. 232 pp. St. Louis: The C. V. Mosby Company. $2.00.

Maternal Mortality in Fifteen States. Bureau Publication No. 223. 234 pp. United States Government Printing Office, Washington, D. C. 1934.

Health Workbook. An Orientation Course in Personal, Racial, Home and Community Hygiene for College Freshmen. By Kathleen Wilkinson Wootten. 212 pp. New York: A. S. Barnes and Company. $1.50.

BOOK REVIEWS

Practical Talks on Heart Disease. By George L. Carlisle. 153 pp. Springfield and Baltimore: Charles C. Thomas. $2.00.

This small volume is written for the instruction of the general practitioner of medicine to correct the impression that "heart disease is a most difficult thing to diagnose and treat properly". It is divided into sections describing, I. the Fundamental Facts which must be known in order to make a clinical investigation of the heart; II. Chronic Heart Disease; III. Acute Heart Disease; IV. Special Types of Heart Disease.

It is an eminently practical and sensible book and stresses clinical rather than instrumental analysis of the cardiac patient. Few practitioners could read it without acquiring some suggestions of value. For example such statements as the following might well be emphasized, "It has been my experience that the average physician expects to find some physical change upon examining a patient with angina pectoris when such is not to be expected," or "the treatment of a case of cardiac neurosis consists of 'out-talking the patient' over a long period of time".

The book, of necessity, is not a complete consideration of cardiac disease and it suffers from a lack of an up-to-date point of view. It describes "arteriosclerotic heart disease" as a common entity apart from coronary disease and attributes the aortic systolic murmur in this condition, as well as in early syphilitic aortitis, to roughening of the vessel walls rather than to aortic dilatation which is the better explanation. The weakest part is the description of rheumatic heart disease and represents the opinion of the physician seeing mainly adult patients with the disease, and not that of one with an additional clear concept of the natural history of the disease through childhood. The author falls into the old error of considering "mitral regurgitation" always a harmless affair disregarding its importance in early mitral disease. The third heart sound, accentuated in mitral stenosis, and the mid-diastolic mitral murmur which precedes the "presystolic" murmur in the development of mitral involvement in childhood are not mentioned. He also accepts the streptococcus cardio-arthritidis of Small as the etiologic agent in rheumatic fever and recommends Small's serum and antigen in the treatment of the disease, a point of view not accepted by the leading workers in the study of rheumatic fever.

The value of the book is in providing a method of clinical approach to a cardiac problem and sane advice as to treatment and for this it is to be recommended.

Acta Leidensia. Framboesia Tropica. Dr. E. H. Hermans (Trans. by L. E. Lindeman-Davies). Pp. 166 with 37 illustrations. The Leiden Institute of Tropical Medicine. 1931. Six shillings.

In considering the infections caused by treponemata, those interested in syphilis find also a fascinating field in the study of framboesia (Treponema pertenue). Dr. Hermans' comprehensive survey of framboesia develops in an orderly manner and is presented in a clear and pleasing style. The opening chapter is devoted to an historical survey but there is a wealth of historical material which permeates, appropriately, the succeeding discussion of the peculiar geographical distribution, the etiology,

the clinical manifestations and the development of the present-day therapy of the disease. Framboesia was probably known to the Arabian physicians but the first recognized description is credited to Bontius early in the seventeenth century.

Serum reactions and the question of immunity in framboesia are discussed with proportionately little attention to the information obtained from animal experimentation. In comparing the clinical symptoms of framboesia and syphilis, there is frequent occasion for describing the modifications of syphilis which have been noted under tropical conditions. The monograph closes with an impartial review of the relationship between these two diseases and Dr. Hermans offers the well-phrased conclusion that it would be "only confusing to look upon lues and framboesia as one and the same thing".

The bibliography (426 references) includes citations of some rather inaccessible works of historical value. The illustrations are limited to clinical manifestations and with relatively little emphasis on the striking raspberry-like granulomata of the primary and secondary stage of framboesia.

Dr. Hermans' monograph should prove interesting and valuable to those engaged in the study of framboesia and syphilis.

Bergey's Manual of Determinative Bacteriology. By David H. Bergey et al. Fourth Edition. 664 pp. Baltimore: The Williams & Wilkins Company. $6.00.

Each edition of this standard and authoritative manual has shown improvement and this final new edition is no exception. To the ordinary physician and indeed to many bacteriologists, the book is as dry as dust and for those not familiar with the new nomenclature, formidable and intimidating. This manual, however, is absolutely indispensable to bacteriologists and particularly so to those engaged in practical work in bacteriology. The reviewer on many occasions in the past has had reason to be grateful for this book and he greatly appreciates the increased bibliography and the thorough combing and digestion of the literature which has resulted in the inclusion of many new species. One has only to study the last edition of what is probably the best textbook of Bacteriology in the English language to realize the satisfactory attainment of the purposes of the manual.

Sex-Hygiene. What to Teach and How to Teach It. By Alfred Worcester. 129 pp. Baltimore and Springfield: Charles C. Thomas. $2.50.

This volume is a collection of lectures delivered by Dr. Worcester from 1899 to the present time. During this period one finds the emphasis shifting from whether sex instruction should be given consideration in the last lecture of the complex sex problems facing modern youth. The author continually emphasizes that sex problems cannot be divorced from their moral implications and be considered purely on a biological basis. He shows himself as the idealist, but never as the blind idealist. Although he advocates abstinence from sexual indulgence before marriage for both sexes, he hastens to add that if there are to be breaks, one should adopt measures to prevent illegitimacy and venereal disease.

In general one might say that Dr. Worcester gives a perfectly sane point of view for the class of young people with whom he is dealing—the Harvard College group. One wonders if this same instruction will suffice for the youth in poor families who are compelled to leave school and begin work at an early age. It is in this class that illegitimacy and venereal disease flourish and some will question whether sex-hygiene should not be taught more from a practical than an idealist point of view to these people. When one considers the widespread toll of gonorrhea and syphilis, prevention rather than an immediate reform to abstinence seems to be a more logical program for the immediate future among the working classes.

The book is written in an interesting style, although there are repetitions of ideas in successive lectures.

The Anatomy of Surgical Approaches. By L. C. Kellogg. 134 pp. Baltimore: William Wood & Co. $1.50.

This little volume of one hundred and thirty-four pages is full of meat. The directions for making skin incisions are excellent but the directions for deeper procedures, although anatomically sound, are designed rather for the laboratory worker than for the operating surgeon. This will be readily appreciated by surgeons who are also teachers of anatomy. With this understanding many surgeons will find, in this little book, much anatomy of practical value.

Practical Obstetrics for Students and Practitioners. By P. Brooke Bland and Thaddeus L. Montgomery. Second Edition. 730 pp. Philadelphia: F. A. Davis Company. $8.00.

The title of this book by Drs. Bland and Montgomery, "Practical Obstetrics," describes it well. It is a thoroughly safe, sound and sane exposition of the art and practice of obstetrics. The authors' description of the various procedures indicated are clear and concise.

The illustrations are on the whole well chosen and well reproduced, but the reviewer regrets that the authors have continued to illustrate the barbarous methods of Sylvester and Dews for resuscitating the newborn.

The final chapter on "Obstetric Jurisprudence" is a valuable addition to the book, and the bibliography of referred reading is a most excellent idea. It is a book that deserves to be popular.